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1

1 Combined pH/conductivity/temperature testers

Hanna

Simultaneous display of pH- and/or conductivity measurement value and temperature.
Automatic temperature compensation of pH- and/or conductivity measurement gives enhanced accuracy. User selection of temperature coefficient enables use in alkaline and acidic media.
Easy calibration with pre-programmed pH and conductivity solution values.
Integral, robust, carbon conductivity probe. Exchangeable pH electrode HI 73127.
Model HI 98130 features a very wide measuring range of 0 to 19.99 mS

Measuring ranges:

pH:	0.0 to 14.0
EC:	0 to 3999µS (HI 98129) 0 to 19.99mS (only HI 98130)
TDS:	0 to 2000mg/l (HI 98129)
°C:	0 to 10.00g/l (HI 98130)

Accuracy:

pH:	±0.05
EC/TDS:	±2% of the upper range value
°C:	±0.5
Batteries:	4 x 1.5 Volt
Ambient conditions:	0 to 50.0°C
Weight:	100g

Type	PK	Cat. No.
HI 98129	1	**9.773 995**
HI 98130	1	**9.773 996**

2

2 Waterproof Multimeters HI991300/HI991301 N

NEW!

Hanna

pH or conductivity (TDS) values are displayed together with temperature. Supplied with multi-parameter probe, all measurements can be taken without changing the probe.
Automatic temperature compensation ensures high accuracy of the measurements.
Automatic calibration with pre-programmed pH buffer (pH 7.01, pH 4.01, pH 10.01) and conductivity solutions 1413µS (for HI 991300) or 12880µS (for HI 991301 N).
Graphic symbols guide the user through calibration and measurements.

HI991300 and HI991301 are supplied complete with multi-parameter probe with 1 metre cable, 4 x 1.5 Volt batteries, altogether in a carrying case.

Measurement range/Accuracy:

pH:	0.00 to 14.00/±0.01
EC:	0 to 3999µS/cm (HI991300) 0 to 20.00mS (HI991301 N)/ ±2 % of the measurement range
TDS:	0 to 2000 mg/l (HI991300) 0 to 10.00 g/l (HI991301 N)/ ±2 % of the measurement range
°C:	0.0 to 60.0

Resolution:

pH:	0.01
EC:	1µS/cm (HI991300) 0.01mS/cm (HI991301 N)
TDS:	1mg/l (HI991300) 0.01g/l (HI991301 N)
°C:	0.1°C
Batteries:	4 x 1.5 Volt AAA
Dimension:	145 x 80 x 36mm
Weight:	210g

Type	PK	Cat. No.
HI 991300	1	**6.231 448**
HI 991301 N	1	**6.241 705**

1 2 3 4 MultiLine® IDS

WTW

Multiparameter measurement defined. The new MultiLine® handhelds with intelligent digital IDS sensors are perfectly suited for all multiparameter applications. The biggest advantage - signals are directly processed in the sensor. Each sensor logs onto the instrument and transfers its ID data including calibration records. There is no danger of confusion, the digital signal transfer allows the use of long cables for all parameters. The unique QSC functionality for IDS pH sensors gives a realistic rating of the current sensor condition. The pH CMC indicates the optimum pH measuring range. A wide range of IDS pH, conductivity and DO probes covers almost any application. Universal waterproof quick-locks secure the sensor against loss. The robust and waterproof (IP67) MultiLine® handhelds are equipped with a colour graphic display for optimum information. A special silicone keypad provides excellent handling comfort. Two USB host interfaces are provided for data transfer to USB sticks or the user's PC. The latest software updates are provided via the internet. NiMH-rechargeable batteries provide an energy-efficient operation. Available as field case sets including sensors and accessores.

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5 6 Multiparameter meters, ProfiLine Multi 3410/3420/3430

5

There are 3 different models available:

Multi 3410: A single channel meter for pH, ORP, conductivity and DO measurement. It is particularly aimed at those users measuring one parameter but occasionally having requirements for measuring a second or third.

Multi 3420: A dual channel instrument for simultaneous measurement of two equal or different parameters

Multi 3430: A triple channel instrument for simultaneous measurement of up to three equal or different parameters

6

Selected IDS-Sensors:

SenTix® 940: Low maintenance combined pH electrode with ATC, QSC suitable, memory for 10 calibrations, stored serial number, pH 0.000 to 14.000 (±0.004pH), temperature range 0.0 to 80.0°C, ±0.2°C

SensoLyt® 900: Low maintenance polymer electrolyte pH electrode with built-in temperature sensor, pressure resistant up to 6 bar, QSC suitable, memory for 10 calibrations, saved serial number, pH 2.000 to 12.000 (±0.004pH), temperature range from 0.0 to 60.0°C, ±0.2°C

SenTix® 950: Combined pH-electrode with plastic shaft, 3 mol/l KCl, ATC, QSC-suitable, memory for 10 calibrations, stored serial number, pH 0.000 to 14.000 (±0.004pH), temperature range 0.0 to 80.0°C, ±0.2°C

SenTix® 980: Combined pH-electrode with plastic shaft, 3 mol/l KCl, ATC, platinum wire junction, QSC-suitable, memory for 10 calibrations, stored serial number, pH 0.000 to 14.000 (±0.004pH), temperature range 0.0 to 100.0°C, ±0.2°C

TetraCon® 925: Robust, general purpose 4-electrode conductivity cell with graphite electrodes incorporating integral temperature sensor. Memory for 10 calibrations, stored serial number, measuring range 10 µS/cm to 2000 mS/cm ±0.5% of value, 0.0 to 100.0°C, ±0.2°C

LR 925/01: 2-electrode stainless steel conductivity cell for low conductivities, integrated temperature sensor, flow through vessel, memory for 10 calibrations, stored serial number, measuring range 0.01 µS/cm to 200µS/cm ±0.5% of value, 0.0 to 100.0°C, ±0.2°C

FDO® 925: Extremely fast (T99< 60 s) and precise optical DO sensor for field and laboratory applications. Handy, suits in different BOD bottles. Waterproof for depth measurement to 25m. Bevelled, air bubble repelling membrane, Green light technology for extended operation time. Insensitive against H_2S. O_2 concentration: 0.00 to 20.00mg/l, O_2 saturation: 0.0 to 200.0% O_2 partial pressure: 0.0 to 400hPa. Accuracy: ±0.5% of value.
The information for meter precision refers to the sensors' built-in, electronic, measuring technology.

ITT

WTW

WTW – The Worldwide No. 1 for Electrochemistry Meters

Founded in 1945, WTW has provided outstanding leadership in the design and production of superior quality water testing instrumentation world-wide for 60 years.

Today WTW is offering the world's most complete line of pH/ORP, D.O./BOD/Respirometry and Conductivity Instruments, Turbidity Meters, Photometers with reagents.

MultiLine® IDS

The new MultiLine® portable instruments with intelligent digital IDS sensors are state of the art in electrochemical measurement technology "made in Germany".

WTW Wissenschaftlich-Technische Werkstätten GmbH
Dr.-Karl-Slevogt-Strasse 1 · D-82362 Weilheim, Germany · Tel.: +49 881 183-0 · Fax: +49 881 183-420 · info@WTW.com · www.WTW.com

Multiparameter meters, ProfiLine Multi 3410/3420/3430

NEW!

WTW

Measurement ranges

pH:	-2.000 to 20.000
mV:	-2.00 to +20.00 ±2500, ±1250
Oxygen measurement	
O2 saturation:	0.0 to 200.0%
O_2 concentration:	0.00 to 20.00 mg/l
O_2 partial pressure:	0.0 to 400%
Conductivity measurement:	0.0mS/cm to 2000mS/cm in 5 mode 0.00µS/cm to 19.99µS/cm (at K=0.1cm^{-1}) 0.000µS/cm to 2.000µS/cm (at K=0.01cm^{-1})
Temp.:	-5.0°C to +105°C
Memory:	manual or time controlled logger, 10000 records
Power supply:	4 x 1.2V NiMH, A-Type, battery charger

Type	Description	PK	Cat. No.	
Multi 3410	only unit	1	**9.920 051**	
Multi 3410 Set 1	inclusive SenTix®940	1	**9.920 052**	
Multi 3410 Set 2	inclusive SenTix®940-3	1	**9.920 053**	
Multi 3410 Set 3	inclusive SensoLyt®900-6	1	**9.920 054**	
Multi 3410 Set 4	inclusive FDO® 925	1	**9.920 055**	
Multi 3410 Set 5	inclusive FDO® 925-3 m	1	**9.920 046**	
Multi 3410 Set 6	inclusive FDO® 925-6	1	**9.920 056**	
Multi 3410 Set 7	inclusive TetraCon® 925	1	**9.920 057**	
Multi 3410 Set 8	inclusive TetraCon® 925-3	1	**9.920 058**	
Multi 3410 Set 9	inclusive TetraCon® 925-6	1	**9.920 059**	
Multi 3410 Set A	inclusive LR 925/01	1	**9.920 060**	
Multi 3410 Set B	inclusive SenTix® 940-3, FDO® 925-3	1	**9.920 061**	
Multi 3410 Set C	inclusive SenTix® 940, TetraCon® 925	1	**9.920 062**	
Multi 3410 Set D	inclusive SenTix® 940-3, TetraCon® 925-3	1	**9.920 063**	
Multi 3410 Set E	inclusive SenTix® 980, LR 925/01	1	**9.920 047**	3
Multi 3420	only unit	1	**9.920 064**	
Multi 3420 Set B	inclusive SenTix® 940-3	1	**9.920 065**	
Multi 3420 Set C	inclusive SenTix® 940, TetraCon® 925	1	**9.920 066**	
Multi 3420 Set D	inclusive SenTix® 940-3, TetraCon® 925-3	1	**9.920 067**	
Multi 3420 Set E	inclusive SenTix®980, LR 925/01	1	**9.920 068**	
Multi 3420 Set H	inclusive SenTix® 950, TetraCon® 925	1	**9.920 048**	1
Multi 3420 Set G	inclusive SenTix® 940-3, FDO® 925-3,TetraCon® 925-3	1	**9.920 049**	
Multi 3430	only unit	1	**9.920 069**	
Multi 3430 Set C	inclusive SenTix®940, TetraCon® 925	1	**9.920 070**	
Multi 3430 Set D	inclusive SenTix®940-3, TetraCon® 925-3	1	**9.920 071**	
Multi 3430 Set E	inclusive SenTix®980, LR 925/01	1	**9.920 072**	
Multi 3430 Set F	inclusive SenTix®940, FDO 925, TetraCon® 925	1	**9.920 073**	
Multi 3430 Set G	inclusive SenTix® 940-3,FDO® 925-3, TetraCon® 925-3	1	**9.920 050**	2
Multi 3430 Set K	inclusive SenTix® 980, FDO® 925, TetraCon® 925	1	**6.241 477**	

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9.920 048

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9.920 050

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9.920 047

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1 pH/mV/°C meter HI 2211-02/HI 2215-02

NEW!

Hanna

- Extra wide LCD, displays pH/mV value and temperature simultaneously
- The stability indicator makes the calibration procedure calibration error free
- Automatic calibration at two points with pre-programmed standard buffers (pH 7.01; 4.01; 10.01)
- Automatic temperature compensation from -10°C to +120°C
- Graphic symbols guide the user through calibration and measurement

Further specifications (HI 2215-02 only):
- Resolution: 0.01 or 0.001pH
- Automatic calibration at two points with 7 pre-programmed standard buffers (pH 1.68; 4.01; 6.86; 7.01; 9.18; 10.01; 12.45) and 2 selectable buffers.
- Recording of up to 100 values with date and time via keystroke
- Data transfer to PC via USB interface

Supplied with:
HI 2211-02 is supplied with pH glass electrode HI 1131B, temperature probe, pH 7.01 and pH 4.01 buffer solution (20ml each), electrolyte solution, electrode holder, 12V adapter

Measuring range/Accuracy:

pH:	-2.00 to 16.00/±0.01
mV:	±399.9 (ISE); ±2000 (ORP)/ ±0.2 (±699.9); ±1 (2000)
°C:	-9.9 to 120/±0.5 (0.0 to 100.0)

Resolution:

pH:	0.01 0.01 or 0.001 (HI 2215-02 only)
mV:	0.1 (±399.9); ±1 (2000)
°C:	0.1
Power supply:	12V d.c. adapter (included)
Operating temp. range:	0 to 50°C
Weight:	2.5

Type	PK	Cat. No.
HI 2211-02	1	**9.773 981**
HI 2215-02	1	**9.773 994**
Spare electrode HI 1131B for HI 2211-2 / HI 2215-02	1	**9.040 993**

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

HANNA instruments

E & OE.

1 Multiparameter Multi 350i

Multi 350i with combined conductivity/ dissolved oxygen sensor ConOx *WTW*
- measures pH/oxygen/conductivity/temperature simultaneously
- data logger and memory for 1500 GLP compliant entries
- universal, robust, waterproof

The Multi 350i:
multifunctional, with high accuracy, flexible usage, universal application.

A multi for every situation:
pH, ORP, ISE, oxygen, conductivity, in a pocket unit. Up to 4 parameters including temperature can be simultaneously measured, displayed and stored by using the new combined conductivity/oxygen sensor ConOx. Beyond this, in addition to pH and combined ISE, every currently-available WTW oxygen or conductivity sensor can be connected to this unit. Menu-driven, backlit graphics display, data logger and 1800 data point memory. Built-in, high-quality NiMH batteries give up to 500 hours of continuous use, universal power supply for charging and operating where power is available. Set includes electrodes and accessories. PC communication package also available.

1

Measurement ranges
pH/ion measurement:
pH: -2.00 to 20.000
mV: -2000 to +2000
Conc.: 0.01 to 2000mg/l

Oxygen measurement
O_2 concentration: 0.00 to 20.00mg/l (20.0mg/l*)
0.0 to 90.0mg/l (90mg/l*)
O2 saturation: 0.00 to 20.00%
0.0 to 600%
O_2 partial pressure: 0.0 to 200.0mbar (200mbar*)
0.0 to 1250mbar

Conductivity measurement: 0.0mS/cm to 2000mS/cm in 5 measuring ranges in AutoRange mode plus:
0.00µS/cm to 20.00µS/cm (at K=0.1cm^{-1})
0.000µS/cm to 2.000µS/cm (at K=0.01cm^{-1})

Temp.: -5.0°C to +105°C

Salinity: 0.0 to 70.0

TDS: 0 to 2000mg/l

Specific resistance: 0.00 to 2000MW

Temperature compensation
pH/ion measurement: auto. -5 to +105.0°C
man. -20 to +130°C
oxygen measurement: at ambient temp. 5°C to 30°C:
±0.5%, < 2% at 0 to +40°C
conductivity measurement: Temp: ±0.01K
non-linear function for ultrapure water, water EN 27 888
linear comp. of 0.01% to 3.00%/K
compensation can be ad

Barometric compensation
Oxygen measurement: autom. with integral pressure sensor (500 to 1100hPa)

Salinity correction
Oxygen measurement: automatic

Reference temperature
Conductivity measurement: selectable 20°C or 25°C

Cell constant
Conductivity measurement: 0.475cm^{-1}, 0.1cm^{-1}, 0.01cm^{-1},
adjustable between 0.25 to 2.5cm^{-1}, 0.09 to 0.11cm^{-1}

Description	PK	Cat. No.
with pH/DIN input, a.c. adapter, operating instructions, without sensors, PC communication pack	1	**9.920 035**
with pH/DIN input and SenTix 41-3m, ConOx-3m, transport case incl. accessories and PC com.	1	**9.920 036**
Sentix 41-1m, accessories in transport case	1	**9.920 023**
Set with multi parameter sonde MPP350 and transport case	1	**9.920 024**

1

1 ProfiLine Multi 1970i

Multi 1970 is robust - waterproof - reliable - a true versatile instrument for measuring at depth *WTW*

The new WTW ProfiLineMulti 197i is not only protected from strong water jets (IP66) but also submersion (IP67).
It has a GLP-compliant memory with real-time clock (500 data records) as well as a RS232 interface.
It accommodates simultaneous connection of pH, conductance and oxygen sensors. The parameter to be measured is set into the display with the "M" function key and can then be measured or stored. Includes a combination carrying handle/stand bracket as well as a carrying strap. The Multi 1970i has an integrated preamplifier which makes it suitable for depth measurements (down to 100m) in single parameter mode when combined with the WTW depth probe.

Specifications:

Measurement ranges	
pH measurement:	pH: -2.00 to 19.99 mV: -1999 to +1999
Oxygen measurement	
O_2 concentration:	0.00 to 19.99mg/l 0.0 to 90.0mg/l
O_2 saturation:	0.00 to 19.99% 0.0 to 600%
Conductivity measurement:	0.0mS/cm to 500mS/cm in 4 measurement ranges when in AutoRange mode Temp.: -5.0°C to +105.0°C Salinity: 0.0 to 70.0
Temperature compensation	
pH measurement:	automatic -5 to +105.0°C manual -20 to +130°C
Oxygen measurement:	for ambient temperatures 5°C to 30°C: ±0.5% < 2% at 0 to +40°C
Conductivity measurement:	non-linear function for natural water per EN 27 888
Air pressure compensation	
oxygen measurement:	automatic with integral pressure sensor (500 to 1100hPa)
Salinity correction	
oxygen measurement:	automatic
Reference temperature	
conductance measurement:	20°C/25°C, selectable
Cell constant	
conductivity measurement:	K=0.475cm^{-1}

Type	PK	Cat. No.
ProfiLine Multi 1970i	1	**9.920 034**

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

WTW

E & OE.

1 SCHOTT® Instruments pH measuring instrument Lab 870

ID electrodes and meters with automatic identification and data exchange and allocation. *SI Analytics GmbH*
- Reliable and precise measuring values due to perfect matching with the measuring system consisting of meter, electrode and buffer solutions.
- fast pH measurement and calibration through advanced measuring algorithm.
- maintains reliablity with "CalClock", sensor recognition and calibration timer.
- fast and easy documentation complying with GLP through perfect communication via USB (slave) and RS232.
- highest safety for measuring and calibrating through wireless sensor recognition.
- ID electrodes and meters with automatic identification and data exchange and allocation.
- the special stand - mounting with one click and the stand is positioned firmly and safely.

Items supplied in set:
- measuring instrument
- ID-electrode with integrated temperature sensor
- buffer solutions
- stand
- universal power supply unit
- cover

Specifications

pH measuring range:	-2.000pH to +19.999pH -2.00pH to +19.99pH
Accuracy (±1digit):	±0.005 ±0.01
mV measuring range:	-999.9mV to +999.9mV; -999mV to +999mV
Accuracy (±1digit)	±0.3mV ±1mV
Temperature measuring range:	-5.0°C to + 120.0°C
Accuracy (±1digit):	0.1°C

Type	PK	Cat. No.
Lab 870 DIN Set	1	**9.773 851**
Lab 870 BNC Set	1	**9.773 852**

1

9.773 864

2

9.773 866

SCHOTT® Instruments multi-parameter measuring instrument ProLab 1000/2000

SI Analytics GmbH

- highest safety level with measurements and calibration through: automized user identification, user recognition with electronic ID card through wireless transponder technology.
- wireless sensor recognition ID electrodes and measuring instrument with automatic identification and data exchange and allocation.
- high-precision and reliable measurements through perfect matching with the measuring system consisting of meter, electrode and buffer solution.
- safety at a glance with "CalClock", Sensor evaluation and calibration timer.
- fast and easy documentation complying with GLP via USB (slave) and RS232 ports.

The special stand - mounting with one click...and the stand is positioned firmly and safely.

Items supplied as set:
- measuring instrument
- electrode with integrated temperature sensor
- buffer solutions
- stand
- universal power supply unit
- cover

Specifications

pH measuring range:	-2.000pH to +20.000pH -2.00pH to +20.00pH -2.0pH to +20.0pH
Accuracy (±1digit):	±0.003 ±0.01
mV measuring range:	-1999.9mV to +1999.9mV; -1999mV to +1999mV
Accuracy (±1digit):	±0.2mV ±1mV
Temperature measuring range:	-10.0°C to + 120.0°C
Accuracy (±1digit):	0.1°C
ISE measuring range:	0.000 to 10000mg/l
Only ProLab 2000:	
Conductivity measurement:	0.000µS/cm to 2000mS/cm
O_2 concentration:	0 to 20.00mg/l x 0.01mg/l

Type	PK	Cat. No.	
ProLab 1000 DIN Set	1	**9.773 864**	1
ProLab 1000 BNC Set	1	**9.773 865**	
ProLab 2000 DIN Set	1	**9.773 866**	2
ProLab 2000 BNC Set	1	**9.773 867**	

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

SI Analytics

E & OE.

SCHOTT® Instruments multiparametermeters ProLab 3000/ProLab 4000

SI Analytics GmbH

- "Windows" interface and operation
- flexible display of measuring values on a high resolution, bright, backlit, colour-graphics display (320x240 pixels)
- 2-channel pH/mV (galvanically isolated) inputs and dU differential measurement
- ID electrodes with automatic identification and data exchange or allocation with the meter
- automatic user identification with electronic identity card including password entry
- recorder functions: display of measurement against time, scalable coordinate axis
- numerical display of measurement value via mouse click (time, data, measurement value, temperature)
- Interfaces: RS232C interface (bi-directional), USB connection (slave, bi-directional), USB master connection with direct connection (without configuration) to: USB-hub, USB-printer, USB-memory, keyboard, mouse, USB-stick

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9.773 857

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9.773 861

Specifications

pH measuring range:	-2.000 pH to +20.000pH -2.00 pH to +20.00pH -2.0 pH to +20.0pH
Accuracy (±1digit):	±0.002 ±0.01
mV measuring range:	-2200.0mV to +2200.0mV; -2200mV to +2200mV
Accuracy (±1digit)	±0.1mV ±1mV
ISE measuring range:	$1.0E^{-40}$ to $9.9E^{39}$ mg/l
Temperature measuring range:	-35.0°C to + 150.0°C
Accuracy (±1digit):	0.1°C
ProLab 4000 only:	
Conductivity measuring range:	0.000µS/cm to 2000mS/cm
Accuracy (±1digit):	0.5% from measurment value at an ambient temperature of 5°C to 30°C

Type	PK	Cat. No.	
ProLab 3000 DIN Set	1	**9.773 857**	1
ProLab 3000 BNC Set	1	**9.773 859**	
ProLab 4000 DIN Set	1	**9.773 861**	2
ProLab 4000 BNC Set	1	**9.773 863**	

The new inoLab® series from WTW

The new inoLab® benchtops are perfectly designed for modern laboratory surroundings. *WTW*
The key pads are clearly outlined and easy-to-operate, their smooth surfaces are
easy-to-clean and the operation is self-explanatory. Depending on the type,
they have a seven segment display or a backlit black and white graphical display, as well as a USB interface.
The new inoLab® Multi 9310 is an outstanding product. It is the first completely digital single channel benchtop meter for the new intelligent IDS sensor generation with digital signal transfer and intelligent features. All meters include a universal power supply and a convenient stand with sensor support.
If desired they can be ordered in application oriented sets including sensors and accessories.

1

1 Laboratory instrument inoLab® Multi 9310 IDS

NEW!

WTW

The Multi 9310 IDS features a new technology: No longer has the meter determining the parameter but only the sensor. Intelligent, digital IDS sensors promotes the inoLab® Multi 9310 IDS to a perfect all-rounder. The universal digital input is ready for all available laboratory IDS sensors. No matter whether pH, conductivity or dissolved oxygen, when plugged into a suitable sensor the inoLab® Multi 9310 becomes either a pH, conductivity or dissolved oxygen meter. Of course it has a modern backlit graphic display with menu-controlled user interface for easy and intuitive operation. The mini USB-B interface provides fast data transfer to a PC. The internal memory can record up to 5000 GLP complying data including ID, date and time. The housing and the keypad are easy-to-clean. An integrated thermal printer (58mm width) is ready for printout of the measured data (option). Includes meter, power supply, stand and USB cable.

Specifications

Display:	backlit graphic LCD
Memory:	manual 200/5000 automatic
Logger:	manual/time controlled
Interface:	Mini USB-B
Power supply:	Universal power supply, 100 to 240 V, 50/60 Hz, 4 x 1.5 V AA or 4 x 1.2 V NiMH

Type	Description	PK	Cat. No.
Multi 9310	Single instrument	1	**9.920 120**
Multi 9310 Set 1	Incl. SenTix® 940	1	**9.920 121**
Multi 9310 Set 2	Incl. SenTix® 980	1	**9.920 122**
Multi 9310 Set 3	Incl. TetraCon®925	1	**9.920 123**
Multi 9310 Set 4	Incl. FDO® 925	1	**9.920 124**
Multi 9310 Set C	Incl. SenTix® 940, TetraCon® 925	1	**9.920 125**
Multi 9310 Set K	Incl. SenTix® 980, FDO® 925 and TetraCon® 925	1	**9.920 126**
Multi 9310P*	Single instrument	1	**9.920 127**
Multi 9310P Set 1*	Incl. SenTix® 940	1	**9.920 128**
Multi 9310P Set 2*	Incl. SenTix® 980	1	**9.920 129**
Multi 9310P Set 3*	Incl. TetraCon®925	1	**9.920 130**
Multi 9310P Set 4*	Incl. FDO® 925	1	**9.920 131**
Multi 9310P Set C*	Incl. SenTix® 940, TetraCon® 925	1	**9.920 132**
Multi 9310P Set K*	Incl. SenTix® 980, FDO® 925 and TetraCon® 925	1	**9.920 133**

* with integrated printer.

Electrodes - please see page 281

1 Multiparameter meter pH/ION/Cond 750

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WTW

Two independent galvanic pH inputs make it possible to perform simultaneous measurements of pH value, Redox potential or ion concentration. Calibration procedures, with up to 7 standard solutions, can be carried out for exact measurements across the entire range of an ISE electrode. Up to 5 individual calibration routines can be stored in memory. The calculation of the calibration curve makes allowance for non-linear segments. The following processes are available for determining ion concentrations: Direct potentiometry, standard addition/subtraction, specimen addition/subtraction, double standard addition, blank value correction, standard addition with blank value correction, reference measurement.

The conductivity measurement allows specific resistance, salinity, TDS and specimen-specific temperature coefficients to be determined. Concentration curves for standard chemicals, like NaCl, are already stored in the instrument. A wide range of additional functions, such as measurement data management, PC connection via MultiLab® pilot, GLP compliant calibration and measurement data acquisition, and bi-directional RS 232 interface are also incorporated.

Measurement ranges/accuracy (±1 digit):
pH/ion measurement:

pH:	-2.000 to +20.000/±0.004
	-2.00 to +20.000/±0.01
mV:	±999.9/±0.2
	±2000/±1
Concentration:	0.001mg/l to 200g/l
Temperature:	automatic: -5.0 to +105.0°C
NTC30 KOhm:	±0.1K
Pt 1000:	±0.1K from 0.01% to 3.00%/K
Conductivity measurement:	0.0µS/cm to 2000mS/cm in 5 ranges when in AutoRange mode
	0.01 to 20.00µS/cm (K=0.1cm^{-1})
	0.001 to 2.000µS/cm (K=0.01cm^{-1})
Temperature:	-5.0 to +105.0°C
Salinity:	0.0 to 70.0
TDS:	0 to 2000mg/l
Spec. resistance:	0.00 to 2000MOhm
Conductance:	±0.5% of measured value
Temperature compensation	-0.5 to +100°C
	manual: -20 to +130°C
	(linear and non-linear function for ultra-pure water and natural water (EN27888))
Deactivate compensation	
Reference temperature	selectable: 20/25°C
Cell constants	fixed: 0.01cm^{-1}
	freely adjustable: 0.090 to 0.110cm^{-1}
Calibration:	0.450 to 0.500cm^{-1}

Type	Description	PK	Cat. No.
inoLab® pH/ION/Cond 750	with 2 DIN inputs and broad range a.c. adapter (individual unit), without printer	1	**9.774 396**
inoLab® pH/ION/Cond 750 Set	inoLab® pH/Ion/Cond 750 + SenTix® 81 with DIN plugs including TetraCon® 325	1	**9.774 397**

2 Test strips, AQUADUR®

2

For determining water hardness. Supplied in boxes of 100 strips.

MACHEREY-NAGEL

Scale gradation °d*	PK	Cat. No.
<3 / >5 / >10 / >15 / >20 / >25	100	**9.130 393**
<3 / >4 / >7 / >14 / >21	100	**9.130 394**
<3 / >4 / >8.4 / >14	100	**9.130 400**

* German units. Multiply by 1.25 to convert to UK units (°e), and by 10 for US units (mg/l $CaCO_3$)

1

1 Litmus paper

Litmus paper, available in blue, red and neutral.
Supplied in books of 100 strips, 10 x 75mm W x L.

MACHEREY-NAGEL

Type	PK	Cat. No.
Litmus paper, blue	1	**9.130 112**
Litmus paper, red	1	**9.130 116**
Litmus paper, neutral	1	**9.130 118**

2

2 LLG-Universal indicator paper, rolls

NEW!

For the determination of pH values.

Range pH	PK	Cat. No.
1 - 11	1	**9.129 800**
1 - 14	1	**9.129 802**

Refill packs containing 3 rolls.

Range pH	PK	Cat. No.
1 - 11	3	**9.129 801**
1 - 14	3	**9.129 803**

3

3 Universal indicator papers

For determination of pH- value.
Plastic dispensing reel with 1 roll of indicator paper and colour scale.

MACHEREY-NAGEL

Range pH	PK	Cat. No.
0,5 - 5,5	1	**9.130 305**
5,5 - 9,0	1	**9.130 325**
1 - 11	1	**9.130 200**
1 - 14	1	**9.130 210**

4

4 Refill packs universal contain 3 rolls.

MACHEREY-NAGEL

Range pH	PK	Cat. No.
0,5 - 5,5	3	**9.130 306**
1 - 11	3	**9.130 203**
1 - 14	3	**9.130 213**
5,5 - 9,0	3	**9.130 326**

5

5 Indicator paper, DUOTEST

Roll length 5m, 10mm width. With two colour zones.
Plastic box with 1 roll of indicator paper and colour scale.

MACHEREY-NAGEL

Range pH	PK	Cat. No.
1 - 12	1	**9.130 344**
1,0 - 4,3	1	**9.130 356**
3,5 - 6,8	1	**9.130 359**
5,0 - 8,0	1	**9.130 347**
7,0 - 10,0	1	**9.130 362**
9,5 - 14,0	1	**9.130 363**

6

6 Refill packs DUOTEST contain 3 rolls.

MACHEREY-NAGEL

Range pH	PK	Cat. No.
1 - 12	3	**9.130 355**
5 - 8	3	**9.130 358**

1 Universal indicator paper, TRITEST

For determination of pH- value. *MACHEREY-NAGEL*
Roll length 5m, 10mm width. With three colour zones, without hydrophobic zone.
Plastic container with 1 roll of indicator paper and colour scale.

Range	PK	Cat. No.
pH		
1 - 11	1	**9.130 367**

2 Refill packs TRITEST contain 3 rolls. *MACHEREY-NAGEL*

Range	PK	Cat. No.
pH		
1 - 11	3	**9.130 368**

1

2

3 Universal indicator paper TRITEST L

For determination of pH- value. *MACHEREY-NAGEL*
Roll length 6m, 14mm width. With three colour zones and 2 hydrophobic zones.
Plastic container with 1 roll of indicator paper and colour scale.

Range	PK	Cat. No.
pH		
1 - 11	1	**9.130 360**

4 Refill packs TRITEST L contain 3 rolls. *MACHEREY-NAGEL*

Range	PK	Cat. No.
pH		
1 - 11	3	**9.130 361**

3

4

5 LLG-Indicator paper strips

NEW!

Range	Description	PK	Cat. No.
pH			
0 - 11	pad of 100 strips	100	**9.129 804**
0 - 14	pad of 100 strips	100	**9.129 805**
0 - 14	50 strips per pack	50	**9.129 806**
0 - 14	100 strips per pack	100	**9.129 807**

5

6 Indicator paper, PEHANON®

For determination of pH-value in coloured solutions. *MACHEREY-NAGEL*
Supplied in packs of 200, 11 x 100mm W x L strips.

Range	PK	Cat. No.
pH		
1 - 12	200	**9.130 657**
0 - 1,8	200	**9.130 658**
1,0 - 2,8	200	**9.130 651**
1,8 - 3,8	200	**9.130 652**
2,8 - 4,6	200	**9.130 656**
3,8 - 5,5	200	**9.130 603**
4,0 - 9,0	200	**9.130 659**
5,2 - 6,8	200	**9.130 605**
6,0 - 8,1	200	**9.130 626**
7,2 - 8,8	200	**9.130 660**
8,0 - 9,7	200	**9.130 366**
9,5 - 12,0	200	**9.130 661**
10,5 - 13,0	200	**9.130 663**
12,0 - 14,0	200	**9.130 666**

6

1

1 pH-Fix indicator strips

NEW!

For determination of pH- value. Permanent colour. Non bleeding. *MACHEREY-NAGEL*

Range pH	PK	Cat. No.
0 - 6,0	100	**9.130 382**
0 - 14,0	100	**9.130 381**
0 - 14,0*	100	**9.130 379**
0,3 - 2,3	100	**9.130 385**
1,7 - 3,8	100	**9.130 386**
2,0 - 9,0	100	**9.130 380**
3,1 - 8,3 CE 1)	100	**9.130 377**
3,6 - 6,1* CE **	100	**9.130 378**
3,6 - 6,1 CE **	100	**9.130 387**
4,5 - 10,0 CE **	100	**9.130 383**
5,1 - 7,2	100	**9.130 388**
6,0 - 7,7	100	**9.130 389**
6,0 - 10,0	100	**9.130 392**
7,0 - 14,0	100	**9.130 384**
7,5 - 9,5	100	**9.130 390**
7,9 - 9,8	100	**9.130 391**

* PlopTop tube

CE-marked according to the IvD-directive 98/79/EG, the directive for medical products 93/42/EWG.

2

2 pH indicator strips

Non-bleeding. Ranges as indicated. Supplied in packs of 100 strips. *Merck*

Type	Range pH	Increments pH units	PK	Cat. No.
Universal	0 - 14	1	100	**9.130 001**
Acilit	0 - 6	0.5	100	**9.130 016**
Neutralit	5 - 10	0.5	100	**9.130 017**
Alkalit	7,5 - 14	0.5	100	**9.130 018**

3

3 Special indicator strips

Non-bleeding. Supplied in packs of 100 strips. *Merck*

Range pH	PK	Cat. No.
0,0 - 2,5	100	**9.130 002**
2,0 - 9,0	100	**9.130 003**
2,5 - 4,5	100	**9.130 004**
4,0 - 7,0	100	**9.130 007**
5,2 - 7,2	100	**9.130 008**
6,5 - 10,0	100	**9.130 010**
11,0 - 13,0	100	**9.130 013**

1 pH tester Checker 1

Pocket pH tester with exchangeable electrode. Ideal for pH testing small amounts of liquid and in narrow vessels. *Hanna*

Specifications:

Measuring range:	0.00 to 14.00 pH
Accuracy:	±0.2 pH
Battery:	2 x 1.5V cells
Probe dimensions:	66 x 55 x 25 mm
Weight:	63g

Type	PK	Cat. No.
Checker 1	1	**9.773 930**
Spare electrode	1	**9.773 931**
Calibration kit, 5 x 20 ml pH 4 and pH 7	1	**9.773 932**
Calibration kit, 10 x 20 ml pH 7	1	**9.773 933**

2 Pocket pH meters, PICCOLO

Handy pocket pH meters with built-in amplifier electrode for greater measurement stability. Automatic temperature compensation via built-in temperature sensor.
Two point calibration.
Piccolo Plus model has additional temperature display.
Supplied complete with electrode, batteries and buffer solutions in ABS case. *Hanna*

Specifications:

Measuring range:	0.00 to 13.00pH 0 to 70°C (Piccolo Plus only)
Accuracy:	±0.01pH ±1°C (Piccolo Plus only)
Batteries:	3 x 1.5V cells giving up to 100 hours operation
Dimensions:	172 x 29 x 15mm
Weight:	80g

Type	PK	Cat. No.
PICCOLO I	1	**9.773 946**
PICCOLO II	1	**9.773 945**
PICCOLO Plus	1	**9.773 944**

Spare electrodes for pH meters PICCOLO

Hanna

Type	Length mm	PK	Cat. No.
HI 1280 PICCOLO I	90	1	**9.773 947**
HI 1290 PICCOLO II	160	1	**9.773 948**
HI 1295 PICCOLO Plus	160	1	**9.773 950**

3 pH/°C tester pHep®-4

Recently developed waterproof pH °C tester (IP67).
First pH tester with handheld measuring device features. Automatic two point calibration with 3 pre-programmed standard buffers (pH 7.01; pH 4.01; pH 10.01).
Stability indicator for high-precision measurements. Simultaneous display of pH value and °C.
Optional automatic or manual temperature compensation. Includes exchangeable HI 73127 pH electrode. *Hanna*

Specifications:

Measuring range:	0.0 to 14.0 pH 0.0 to 60.0°C
Accuracy:	±0.1 pH ±0.5°C
Batteries:	4 x 1.5V
Environmental conditions:	0 to +50°C
Dimensions:	163 x 40 x 26mm
Weight:	100g

Type	PK	Cat. No.
pHep®-4	1	**9.773 920**
Spare electrode	1	**9.773 921**
Calibration Kit pH 7.01 + 10.01, 5 x 20 ml	1	**9.773 934**
Calibration kit pH 4.00 + 7.01, 5 x 20 ml	1	**9.773 932**

1

1 pH/°C Meter HI 991001

Hanna

- Portable pH/°C -Meter for laboratory use
- displays pH and temperature simultaneously
- stabilty Indicator prevents unstable measurements
- automatic 2 point calibration with pre-programmed standard buffers (pH 7.01; 4.01; 10.01)
- automatic temperature compensation enables highest accuracy
- supplied with amplified pH Electrode HI 1296D with integral temperature sensor

Specifications:

Measuring ranges:	-2.00 to 16.00 pH -5.0 to 105°C
Accuracy:	±0.02 pH ±0.5°C
Battery:	1x 9 Volt
Operating temp. range:	0 to 50.0°C
Weight:	500g

Type	PK	Cat. No.
HI 991001	1	**9.733 998**

2

2 Accessories for pH-/°C- Meter HI 991001

Hanna

Type	PK	Cat. No.
Electrode HI 1296 D	1	**9.773 982**
Calibration Kit pH 7.01 & 4.01 (5 x 20ml each)	1	**9.773 932**
Calibration Kit pH 7,01 & 10,01 (5 x 20ml)	1	**9.773 934**

3

3 Portable pH/ mV/ °C Meters HI 8314N/HI 83141

Hanna

HI 8314N: supplied complete with plastic-bodied pH electrode HI1217D with integral temperature sensor, calibration screwdriver, 9 Volt Battery.

HI 83141: supplied complete with plastic-bodied pH electrode HI1230B, separate temperature probe, calibration screwdriver, 9 Volt battery.

Measuring range/Accuracy:

pH:	0.00 to 14.00/±0.01
mV:	0 to ±1999 (ORP)/±1
°C:	0.0 to 100.0/±0.4
pH calibration:	manual, 2 point, through trimmers, (offset ±1 pH; slope 85 to 105%)
Temperature compensation:	automatic, 0 to 70°C (32 to 158°F) or fix at 25°C without temperature probe
Dimensions:	185 x 82 x 45mm
Battery type/operating life:	1 x 9V/approx. 100 hours of continuous use

Type	PK	Cat. No.
HI 8314N	1	**9.773 959**
HI 83141	1	**9.773 953**

1 Waterproof pH-/mV-/°C- Meters HI 9125 and HI 9126

Hanna

- rugged waterproof pH Meters
- pH or mV value and temperature are displayed simultaneously
- graphical symbols guide the user through calibration and measurement
- automatic one or two point calibration with pre-programmed standard buffers (pH 4.01, 6.86, 7.01, 9.18, 10.01)
- automatic or manual temperature compensation
- additionally, HI 9126 displays the electrode status, 2 customs buffers can be programmed
- HI 9125 & HI 9126 are supplied with plastic pH electrode, temperature probe buffer solutions pH 4.01 and 7.01 (20ml each), 3 x 1.5V batteries all contained within a carrying case

1

Specifications

Range:	
pH	-2.00 to 16.00
mV	-1999 to +1999
°C	-20.0 to +120.0
Accuracy:	
pH	±0.01
mV	±1
°C	±0.4
Dimensions:	192 x 72 x 36mm
Weight:	525g

Type	PK	Cat. No.
HI 9125	1	**9.773 978**
HI 9126	1	**9.773 979**
Spare electrode HI 1230B	1	**6.050 012**
Temperature sensor, 1m cable	1	**9.773 960**

2 Calibration Kits for pH meters

Hanna

2

Type	PK	Cat. No.
Calibration Kit pH 7.01 & 4.01 (5 x 20ml each)	1	**9.773 932**
Calibration Kit pH 7.01 & 10.01 (5 x 20ml each)	1	**9.773 934**

3 Foodcare pH Meter HI 99161 with penetration electrode

Hanna

The FC202D electrode supplied is highly suitable for measurements in Food products like fruit juices, yoghurt, butter, cheese and meat, due to its conical profile. It has a built in temperature sensor. pH and temperature are displayed simultaneously. With Stability indicator. Automatic 1- or 2-point calibration with pre-programmed standard buffers (pH 4.01; 7.01; 10.01).

Instrument is supplied with Foodcare Electrode FC202D, pH 7.01 & pH 4.01 buffer solutions (one sachet of 20ml each), cleaning solutions (2 x 20ml) 4 x 1.5 Volt batteries, all contained in a carrying case.

3

Measuring range/Accuracy:

pH:	-2.00 to 16.00/±0.01
°C:	-5.0 to 105.0/±0.4
Battery type:	4 x 1.5 Volt AAA
Operating range:	0 to 50°C
Weight:	205g

Type	PK	Cat. No.
HI 99161	1	**6.233 767**

1 pH/Redox-Meter AL20pH Set

AQUALYTIC

The new, microprocessor-controlled, AL20, hand-held meter range meets the day-to-day requirement for sturdy and reliable systems to measure pH or redox, conductivity/TDS, temperature and dissolved oxygen.
The water-tight housing complies with IP67 and is fitted with protective armouring to ensure reliable operation, even in extreme ambient conditions. The support can be flipped up to hang the meter on pipes or branches.

- battery operation period up to 15000 hours (4 x 1.5V type AA batteries)
- auto Hold function
- internal memory for 20 data sets
- 1/2 or 3-point-Calibration
- automatic buffer recognition
- sensor connections: DIN 19262 and two 4mm banana sockets "Temp" and "Ref"
- pH electrode: Gel-Type, plastic, with integral temperature sensor

Items supplied: AL20pH, batteries and manual, carrying case, combined pH/Temperature electrode (9.699 272) and buffer solutions.

Specifications:

pH:	0.00 to 14.00
Accuracy:	±0.01 pH at 25°C, ±1 sig. digit
Temperature:	-10.0 to +110.0°C
	14.0 to 230.0°F
Accuracy:	±0.2°C (0 to 50°C, otherwise ±0.4°C)
Redox (ORP):	-1999 to +2000mV
Redox (relative):	-1792 to +2206mV (DIN 38 404)
Accuracy:	±0.1% fsd (mV or rel. mV)
Impedance:	$>10^{12}$ Ω (typ.)
Input current:	<1 pA
Nominal temperature:	25°C
Operating temperature:	0 to 50°C
Storage temperature:	-20 to 70°C
Power consumption:	0.2mA
Auto off function:	0 to 120min

Type	PK	Cat. No.
AL20pH Set	1	**9.699 260**

Accessories for pH meter AL20pH

NEW!

AQUALYTIC

Description	PK	Cat. No.
Redox electrode	1	**9.699 263**
pH electrode plastic/gel with integr. temperature sensor	1	**7.620 687**
pH buffer solution set incl. 90ml pH 4.00, pH 7.00 and pH 10.00 each	1	**9.699 272**

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

AQUALYTIC®

E & OE.

1 pH meter Vario pH

Ergonomic design, with a variety of uses *WTW*

Attractive: as well as its eye-catching design, the new Vario has no buttons but an innovative touchscreen instead. All functions can easily be called up and set - with just one hand. A slight touch on the display suffices - and the Vario is ready to measure. Immersing the probe in the sample solution starts measurement automatically. The stable measurement value, including temperature, is easily legible on the large display; a Hold function freezes the display. GLP compliant memory stores up to 50 measurements for subsequent evaluation.

But the Vario can do even more.
Included in Vario Set accessories is an adapter which makes the device compatible with conventional precision electrodes. This allows the Vario to measure as accurately and reliably as a manual unit.
If the Vario is not in use for pH measurements, it is useful as a lab clock or timer.

Specifications:

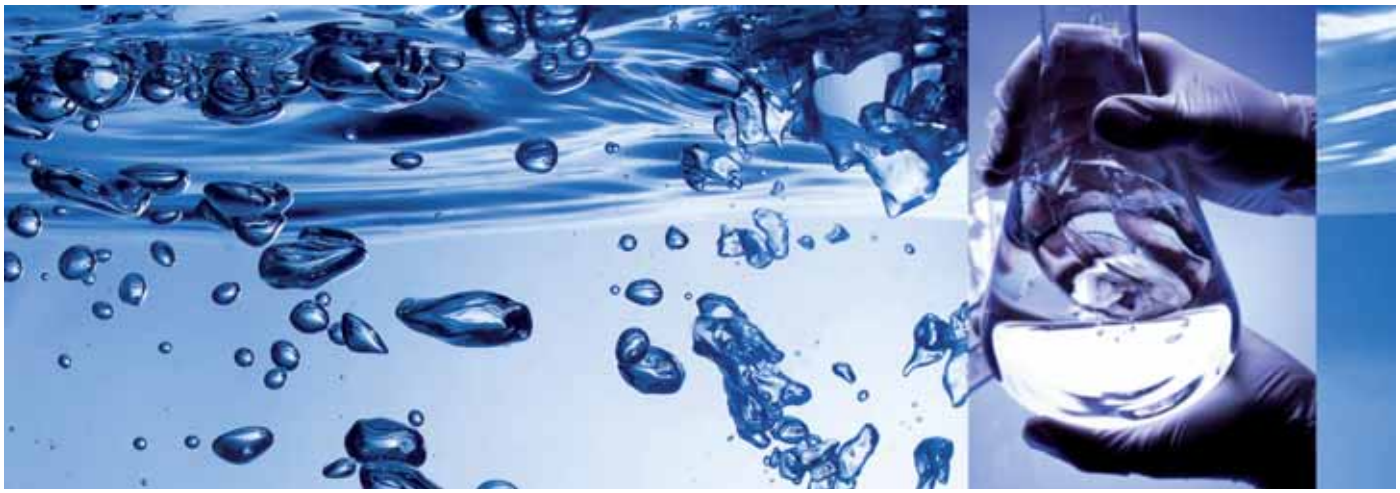
range:	-2.00 to 16.00 pH
accuracy:	±0.01 pH
Temperature measurement range:	-5.0 to 100.0°C
Automatic temperature compensation:	yes
Automatic buffer detection:	TEC/NIST
Calibration points:	3 (MultiCal®)
Calibration alarm:	yes
Calibration date (GLP):	yes
Memory:	50
AutoRead:	automatic AutoRead function Hold function to freeze measurement display

Description	PK	Cat. No.
Vario single unit including case, buffer 4/7	1	**9.774 385**
Vario Set 1 (case, DIN adapter, buffer 4/7 and SenTix 21)	1	**9.774 386**
Vario Set 2 (case, DIN adapter, buffer 4/7 and SenTix 41)	1	**9.774 387**
Vario Set 3 (case, S7 and DIN adapter, buffer 4/7 and SenTix 20)	1	**9.774 388**
Vario Set 4 (case, S7 and DIN adapter, buffer 4/7 and SenTix 60)	1	**9.774 389**
Vario Set 5 (case, short electrode including temperature probe, buffer 4/7)	1	**9.774 392**

Accessories for Vario pH meters

WTW

Description	PK	Cat. No.
S7-Adapter	1	**9.774 393**
DIN-Adapter	1	**9.774 394**
Electrode with temperature sensor	1	**9.774 395**



Pocket pH meters

The WTW ProfiLine, hand-held, pH/mV meters are robust and waterproof, according to IP67. They have LCD or graphics displays. The proven DIN socket for connecting pH electrodes permits pH measurement even in wet environments. The instruments can be operated by standard alkaline or rechargeable batteries. *WTW*

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2

1 2 Portable pH meter pH 3110

Make testing simple. Easy operation virtually eliminates errors. All function keys of the 3110 can be operated even when wearing gloves; automatic calibration and AutoRead functions ensure stable and reproducible results. The multifunctional display for pH, and temperature is always easy to read. *WTW*

Measuring ranges

pH:	-2.0 ... +19.9
	-2.00 ... +19.99
	-2.000 ... +19.999
Accuracy:	±0.01 pH (±1 digit)
	±0.005 from +15°C to +35°C
mV/Accuracy:	±1200.0/±0.3
	±2000/±0.1
Temperature:	-5.0 to +105.0°C
Accuracy:	±0.1°C
Temperature compensation:	Automatic via pH electrodes with integral temperature probe, TFK 325 or Pt100

Type	Description	PK	Cat. No.
pH 3110	meter only	1	**9.774 367**
pH 3110 Set 1	case set including SenTix 21 and accessories	1	**9.774 376**
pH 3110 Set 2	case set including SenTix 41 and accessories	1	**9.774 354**
pH 3110 Set 3	case set including SenTix 81 and accessories	1	**9.774 317**

3

3 Portable pH meter pH 3210

Convenient and versatile pH/mV meter with backlit graphics display and menu controlled operation. Waterproof and robust. With 5 point calibration for WTW technical or DIN/NIST buffers. Additional 20 pre-programmed buffer sets. The new CMC function (Continuous Measurement Control) helps maintain the optimum measuring range and warns when limits are exceeded. *WTW*

Measuring ranges

pH:	-2.0 ... +20.0
	-2.00 ... +20.00
	-2.000 ... +20.000
Accuracy:	±0.005 pH from +15°C to +35°C
mV/Accuracy:	±1200.0/±0.3 mV
	±2500/±0.1 mV
Temperature:	-5.0 to +105°C
Accuracy:	±0.1°C

Type	Description	PK	Cat. No.
pH 3210	meter only	1	**9.774 377**
pH 3210 Set 2	case set including SenTix 41 and accessories	1	**9.774 355**
pH 3210 Set 3	case set including SenTix 81 and accessories	1	**9.774 318**
pH 3210 Set 4	case set including SenTix 51 and accessories	1	**9.774 319**

1

2

1 2 pH-Meter pH 3310

The pH/mV handheld meter with integral, time controlled, data logger and memory for 5000 GLP compliant records is ideal for extended data collection. With 1 to 5-point pH calibration. Menu controlled, with backlit graphics display for comfortable and safe operation.
Unique CMC-function for controlling the optimum measuring range. 100% waterproof, USB interface for fast data transfer. Includes driver software and cable. *WTW*

Measuring ranges

pH:	-2.0 ... +20.0
	-2.00 ... +20.00
	-2.000 ... +20.000
Accuracy:	±0.005 pH from +15°C to +35°C
mV/Accuracy:	±1200.0/±0.3 mV
	±2500/±0.1 mV
Temperature:	-5.0 to +105°C
Accuracy:	±0.1°C
Memory:	5000 records (measured value, temperature, date, time, ID)

Type	Description	PK	Cat. No.
pH 3310	meter only	1	**9.774 337**
pH 3310 Set 2	case set including SenTix 41 and accessories	1	**9.774 356**
pH 3310 Set 3	case set including SenTix 81 and accessories	1	**9.774 375**
pH 3310 Set 4	case set including SenTix 51 and accessories	1	**9.774 329**

Protective armouring for ProfiLine handheld meters, SM Pro

Soft rubber, shock absorbing cover for ProfiLine handheld meters *WTW*

Type	PK	Cat. No.
SM Pro	1	**9.774 118**

3 Storage and maintenance kit for pH meters

Kit with one pH storage sleeve, technical buffer solution pH 4 and pH 7, 30ml KCl, 50ml cleaning and 50ml storage solutions. *WTW*

Type	PK	Cat. No.
Safe Kit	1	**9.774 117**

3

1

1 SCHOTT® Instruments pH Meters, Lab 850 and 860

SI Analytics GmbH

CalClock function keeps your calibration under control: This unique combination of sensor evaluation and calibration timer monitors all calibration relevant parameters (buffer, electrode, curve slope, zero-point, time) and immediately indicates any errors.

Features:
- keypad
- clock
- large LCD display
- calibration interval adjustable
- alarm

Lab 850 is now equipped with:
- bi-directional RS 232C interface
- memory: 800 data records
- GLP compliant
- 3 point calibration

Additional features Lab 860:
- USB (slave) connection
- 5 point calibration

Items supplied: pH meter Lab 850 or pH meter Lab 860, electrode BlueLine pH14 with temperature sensor, support, cover, power supply and DIN buffers 4.01 and 6.87.

Specifications

Measuring range:	-2.00 to +19.999pH or -999.9 to +999.9mV and -1999 to +1999mV
Temperature range:	-5.0 to +120.0°C

Type	PK	Cat. No.
Lab 850 Set	1	**9.773 850**
Lab 860 Set	1	**9.773 855**

2

3

2 3 Laboratory instrument inoLab® pH 7110

NEW!

WTW

The new inoLab® pH 7110 is a basic pH/mV benchtop meter for fast and accurate results without efforts. A big LCD segment display makes readings easy; a well-arranged keypad provides convenient operation. The automatic AutoRead function supports correct and repeatable results. An adjustable built-in calibration timer reminds the user of periodical calibration. Each meter comes including stand and accessories.

Specifications

Ranges	All values ±1 digit
pH:	-2.0 ... 19.9 ±0.1 pH -2.00 ... 19.99 ±0.01 pH -2.000 ... 19.999 ±0.005 pH
mV:	±(1200.0 ±0.3) mV ±(2000 ±1) mV
Calibration:	1-, 2- or 3 point WTW technical buffer or DIN/NIST
Temperature:	-5.0 ... 105.0°C ±0.1°C
Power supply:	Universal power supply 100 to 240V, 50/60Hz, 4 x 1.5V AA or 4 x 1.2V NiMH rechargeable batteries

Type	Description	PK	Cat. No.
pH 7110	Single unit incl. accessories	1	**9.920 090**
pH 7110 SET 2	Meter incl. SenTix® 41 and accessories	1	**9.920 091**
pH 7110 SET 4	Meter incl. SenTix® 81 and accessories	1	**9.920 092**
pH 7110 BNC	Single instrument including accessories, BNC input	1	**9.920 093**
7110 BNC SET 7	Meter incl. SenTix® 42 and accessories	1	**9.920 094**
7110 BNC SET 9	Meter incl. SenTix® 82 and accessories	1	**9.920 095**

1 Laboratory instrument inoLab® pH 7310

NEW!

WTW

Reliable Documentation for pH measurement, if desired also available with built-in printer: This is the new inoLab® pH 7310 or inoLab® pH 7310P. A modern backlit graphic display with menu controlled user interface allows easy and intuitive operation. The mini USB-B interface provides fast data transfer to a PC. The internal memory can record up to 5000 GLP complying data including ID, date and time. The housing and the keypad are easy-to-clean. Up to five calibration points cover almost the complete pH range. A calibration history of the 10 last calibrations allows conclusions on the state of the sensor. An integrated thermal printer (58mm width) is ready for printout of the measured data (option). The scope of delivery includes meter, power supply, stand and USB cable.

1

Specifications

Ranges	All values ±1 digit
pH:	-2.0 ... 20.0 ±0.1 pH
	-2.00 ... 20.00 ±0.01 pH
	-2.000 ... 20.000 ±0.005 pH
mV:	±(1200.0 ±0.3) mV
	±(2500 ±1) mV
Temperature:	-5.0 ... 105.0°C ±0.1°C
Calibration:	1-, 2-, 3-, 4-, 5 point WTW technical. DIN, NIST and 20 additional buffer sets
Calibration memory:	Up to 10 calibrations recallable
Display:	LCD Graphic, backlit
Memory:	manual 200/5000 automatic
Logger:	manual/time controlled
Interface:	Mini USB-B
Power supply:	Universal power supply, 100 to 240V, 50/60 z, 4 x 1.5V AA or 4 x 1.2V NiMH

Type	Description	PK	Cat. No.
pH 7310	Meter only incl. accessories	1	**9.920 100**
pH 7310 Set 2	Meter incl. SenTix® 41and accessories	1	**9.920 101**
pH 7310 Set 4	Meter incl. SenTix® 81 and accessories	1	**9.920 102**
pH 7310P	Meter incl. integrated printer	1	**9.920 104**
pH 7310P Set 2	Meter with integrated printer, incl. SenTix® 41and accessories	1	**9.920 105**
pH 7310P Set 4	Meter with integrated printer, incl. SenTix® 81 and accessories	1	**9.920 106**
pH 7310P BNC	Meter with integrated printer, incl. accessories, BNC input	1	**9.920 107**

LLG-pH-Electrodes ecomony line

NEW!

pH combination electrodes, PPO plastic shaft black, fixed protection basket, cartridge-style conductive system, salt reservoir. The salt reservoir helps to increase the service life of the electrode. This is recommended when using the electrode in media with fewer ions.

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9.040 811

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9.040 810

Specifications

Temperature range:	0 to +60°C
pH range:	UW-Glass: pH 0 to 12, briefly pH 14
Dimensions (L x dia.):	120 x 12mm
Electrolyte:	solid electrolyte
Diaphragm:	1 x ceramic

Description	Cable m	PK	Cat. No.	
Electrode with cable (DIN plug)	2	1	**9.040 812**	
Electrode with cable (BNC plug)	2	1	**9.040 811**	2
Electrode without cable (S7 connector head, please order Art. no. 9.040 817 or 9.040 818 separately)	-	1	**9.040 810**	3
Cable, dia. 5 mm, applicable up to +75°C, with DIN plug	3	1	**9.040 817**	
Cable, dia. 5 mm, applicable up to +75°C, with BNC plug	3	1	**9.040 818**	

1 LLG-pH-Electrodes labobratory line

NEW!

pH combination electrodes, glass shaft, cartridge-style conductive system, salt reservoir.
The salt reservoir helps to increase the service life of the electrode. This is recommended when using the electrode in media with fewer ions.

Specifications:

Temperature range:	-5 to +80°C
pH range:	U-Glass: pH 0 to 12, briefly pH 14
Dimensions (L x dia.):	120 x 12mm
Electrolyte:	gel-sealed
Diaphragm:	1 x zircon dioxide

Description	Cable m	PK	Cat. No.	
Electrode with cable (DIN plug)	1	1	**9.040 815**	
Electrode with cable (BNC plug)	1	1	**9.040 814**	2
Electrode without cable (S7 connector head, please order Art. no. 9.040 817 or 9.040 818 separately)	-	1	**9.040 813**	3
Connecting cable, dia. 5mm, applicable up to +75°C, with DIN plug	3	1	**9.040 817**	
Connecting cable, dia. 5mm, applicable up to +75°C, with BNC plug	3	1	**9.040 818**	

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9.040 814

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9.040 813

4

4 pH combination electrodes, gel electrolyte, SenTix®

Basic pH combination electrodes, with gel electrolyte. *WTW*

Type	Connector	Cable m	Int. temp. probe	PK	Cat. No.
SenTix® 20	Plug-in head	-	no	1	**9.040 851**
SenTix® 21	DIN, waterproof	1	no	1	**9.040 872**
SenTix®21-3	DIN, waterproof	3	no	1	**9.040 873**
SenTix® 22	BNC	1	no	1	**9.040 840**
SenTix® 41	DIN, waterproof	1	yes	1	**9.040 876**
SenTix® 41-3	DIN, waterproof	3	yes	1	**9.040 877**
SenTix® 42	BNC	1	yes	1	**9.040 841**

5

5 pH combination electrodes, liquid electrolyte, SenTix®

Standard pH combination electrodes with non-solid electrolytes, length 120mm. *WTW*

Type	Connector	Cable m	Int. temp. probe	PK	Cat. No.
SenTix® 60	Plug head	-	no	1	**9.040 842**
SenTix® 61	DIN, watertight	1	no	1	**9.040 881**
SenTix® 62	BNC	1	no	1	**9.040 843**
SenTix® 81	DIN, watertight	1	yes	1	**9.040 886**
SenTix® 82	BNC	1	yes	1	**9.040 844**

6

6 pH combination electrode, liquid electrolyte, SenTix® H with plug head

Precision pH combination electrodes with plug head. Length 165mm. *WTW*

Description	PK	Cat. No.
SenTix® H	1	**9.040 845**

7

7 pH electrodes, SenTix®

pH electrodes with plug head for special applications. *WTW*

Type	Description	PK	Cat. No.
SenTix® Sp	for penetration measurements	1	**9.040 890**
SenTix® Sur	for surface measurements	1	**9.040 891**
SenTix® Mic	pH micro combination electrode	1	**9.040 892**

Application table for pH electrodes

Application	Sample type	BlueLine Type-Nr.	Integrated temperature probe
General Laboratory	General purpose	**14 pH**	YES
		12 pH	NO
	Small sample volume	**16 pH**	NO
	High ionic strength - extreme pH Non-aqueous -solvents, alcohols	**13 pH**	NO
	Titration	**14 pH**	YES
		12 pH	NO
	Harsh environment, rugged use	**54 pH**	YES
	Low maintenance	**24 pH**	YES
		23 pH	NO
Food, Beverage and Dairy	Flat surface - cheese, meat, agar	**27 pH**	NO
	Semi solids - fruit, meat, cheese, jam	**21 pH**	NO
	Titration	**14 pH**	YES
		12 pH	NO
	Juices	**14 pH**	YES
		12 pH	NO
Cosmetics	General purpose	**14 pH**	YES
		12 pH	NO
	Emulsions - cosmetics, oil	**13 pH**	NO
Manufacturing	Flat surface - paper	**27 pH**	NO
	Harsh environment - rugged use, field or plant	**54 pH**	YES
	Emulsions - petroleum, paint	**13 pH**	NO
Education	Economic	**24 pH**	YES
		23 pH	NO
	Research Grade	**13 pH**	NO

1 Electrode BlueLine 11 pH

SCHOTT® Instruments pH combination electrode with glass body, Ag/AgCl reference system, cone membrane, platinum junction and screw head. LB 1A or LB 1BNC cable combination please order separately.
Application: Universal use in chemical, pharmaceutical and food industries.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 100°C
pH range:	0 to 14pH
Temperature sensor:	No
Length/ Dia.:	120mm/12mm
Electrolyte:	Liquid, KCl 3 mol/l
Diaphragm:	Platinum
Membrane resistance at 25°C:	250MΩ
Refill hole cover:	Slide

Type	PK	Cat. No.
BlueLine 11 pH	1	**9.041 140**

2 Electrode BlueLine 12 pH

Generally as BlueLine 11 pH, but with 1 metre x 3mm dia. fixed cable and DIN plug connection.

SI Analytics GmbH

Type	PK	Cat. No.
BlueLine 12 pH	1	**9.041 141**

3 Electrode BlueLine 13 pH

SCHOTT® Instruments pH-combination electrode with glass body, Ag/AgCl reference system and plug-in head. LB 1A or LB 1BNC cable combination please order separately.
Applications: Universal use in chemical, pharmaceutical and food industries.
Ideal for low ionic strength materials (Cremes, Emulsions, Dispersions and Suspensions).

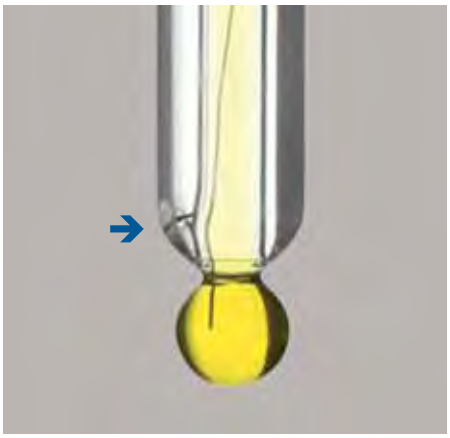
SI Analytics GmbH

Specifications:

Temperature range:	-5 to 100°C
pH range:	0 to 14pH
Temperature sensor:	No
Length/Dia.:	170mm/12mm
Electrolyte:	Fluid, KCl 3mol/l
Diaphragm:	Ground joint
Membrane resistance at 25°C:	300 MΩ
Refill hole cover:	Slide

Type	PK	Cat. No.
BlueLine 13 pH	1	**9.041 142**

Notes for the successful measuring with pH and Redox electrodes



The platinum diaphragm developed by SCHOTT® gives electrodes particularly constant and reproducible measuring characteristics.

It consists of twisted platinum wires potted into the glass shaft of the electrode. The defined intermediate space between the platinum wires ensures a continuously uniform electrolyte flow rate in all mediums and at all temperatures, which remains constant over the entire lifetime of the electrode.

Maintenance and care, as well as the choice of the appropriate electrode for the application are essential for a maximum lifetime of an electrode and therefore especially precise and reproducible measurements. The following points are of high importance:

Measuring
Open the refill hole on refillable electrodes before processing measurements and calibrations. Immerse the sensor into the solution at least up to the diaphragm. When using refillable sensors please pay attention that the electrolyte fill level is 5 cm above the level of the medium (see refilling). Rinse the sensor with distilled water between measurements, however do not wipe off. Carefully dab off excess drops.

Calibration
In order to minimize false measuring results with pH electrodes being used under extreme conditions or at the limit of the specified application areas, the electrodes should be calibrated more frequently to assure the appropriate condition for measuring safety. The measurement can only be as precise as the accuracy of the last calibration and its actuality. For determining whether the pH electrode has changed since the last calibration, the electrode should be controlled by measuring the pH value of a buffer solution. When deviations are discovered, a setting of the individual electrode's data (slope and zero point) on the pH meter is necessary.
If buffer solutions are taken from a bottle, ensure that the bottle is reclosed immediately after removal. Never refill the used buffer solution into the bottle, always dispose it. For an accurate calibration we recommend to operate with our buffer ampoules certified according to DIN 19 266, which are sterilized in superheated steam. Pay attention to a constant temperature of the buffers during the calibration.
Redox sensors cannot be calibrated. They can be checked for proper function using appropriate test solutions.

Refilling of liquid electrolyte electrodes
The missing solution in the electrolyte chamber of the reference system must be refilled regularly. For most electrodes a 3 M KCl is a suitable solution for refilling. In individual cases it can be recommended to check the appropriate refilling solution with the help of the electrode's technical data.

Storage
The electrodes should be stored between 0 and 40°C in aqueous solution (use e.g. our storing solution L 911). They must not be stored in distilled water. Depending on the storage conditions (temperature and humidity) the aqueous solution in the cap can run dry preterm. In this case the electrode must be stored for a minimum of 24 hours in storing solution (e.g. L 911). The usability of the electrode must then be checked by performing a calibration.

Cleaning
Contaminations on the pH glass membrane/Redox sensor (measuring electrode) and the diaphragm (reference electrode) cause measuring deviations. Before heading to further cleaning steps, the glass membrane should be cleaned with an ethanol tinctured cloth. For the case that further deviations should appear during the calibration, the cleaning process should be continued by the following steps. Depending on the degree of contamination, submerge only the measuring electrode or the complete electrode, i.e. also including the diaphragm into the cleaning solution:
- *Coverings* can be removed with diluted inorganic acid (e.g. hydrochloric acid 0.1 mol/l or NaOH 0.1 mol/l).
- *Organic contamination* can be dissolved with suitable solutions (e.g. acetone or ethanol).
- *Fat* is removed with tenside solution.
- *Protein* is removed with hydrochloric pepsin solution (cleaning solution L 510).

When cleaning please note:
- Ensure that any cleaning agent, which has leaked into the electrode, does not come into contact with the reference system; if necessary rinse out the reference electrode with electrolyte solution.
- After cleaning the electrode please rinse it with distilled water, do not rub dry.
- Platinum diaphragms must not be maintained mechanically. Always clean them chemically by dipping them into the different cleaning solutions.

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support@si-analytics.com

ITT

The first address for
pH electrodes

SCHOTT® Instruments IoLine Electrodes with Iodine/Iodide Reference System

- No metal contamination: 100% free of undesirable metal ions
- High stability of measured values with changing temperatures
- Patented 3-chamber iodine reservoir for long lifetime

SI Analytics

www.si-analytics.com

1 Electrode BlueLine 14 pH with temperature sensor

SCHOTT® Instruments pH-combination electrode with glass shaft, Ag/AgCl reference system and 1 metre x 5mm dia. fixed cable, with DIN and 4mm pin plug connections.
Applications:Universal use in the chemical, pharmaceutical and food industries.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 100°C
pH range:	0 to 14pH
Temperature sensor:	NTC 30kΩ
Length/Dia.:	120mm/12mm
Electrolyte:	Fluid, KCl 3mol/l
Diaphragm:	Platinum
Membrane resistance at 25°C:	300MΩ
Refill hole cover:	Slide

Type	PK	Cat. No.
BlueLine 14 pH	1	**9.041 143**
BlueLine 14 pH ID	1	**6.233 381**

2 Electrode BlueLine 15 pH

As BlueLine 14 pH, but with built-in ATC, 1 metre long x 5mm diameter fixed cable, BNC plug and 4mm banana plug.

SI Analytics GmbH

Type	PK	Cat. No.
BlueLine 15 pH	1	**9.041 144**
BlueLine 15 pH ID	1	**9.041 155**

3 Micro Electrode BlueLine 16 pH

SCHOTT® Instruments micro-pH-combination electrode with glass body, Ag/AgCl reference system and plug-in head. LB 1A or LB 1BNC cable combination please order separately.
Ideal for small sample volumes.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 100°C
pH range:	0 to 14pH
Temperature sensor:	No
Length // Dia.:	40/80mm // 12/5mm
Electrolyte:	Fluid, KCI 3mol/l
Diaphragm:	Platinum
Membrane resistance at 25°C:	300MΩ
Refill hole cover:	Slide

Type	PK	Cat. No.
BlueLine 16 pH	1	**9.041 145**

4 Spear-tip electrode, BlueLine 21 pH

SCHOTT® Instruments pH combination electrode with glass body, Ag/AgCl reference system, spear membrane tip and plug head. LB 1 A or LB 1 BNC cable combination please order separately.
Particularly suitable for penetration measurements in semi-solid media.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to + 80°C
pH range:	2 to 13 pH
Temperature sensor:	No
Taper length // Dia. max./min.	65/25mm // 12/5mm
Electrolyte:	Referid®
Diaphragm:	Hole
Membrane resistance at 25°C:	400 MΩ
Refill hole cover:	No refill hole

Type	PK	Cat. No.
BlueLine 21 pH	1	**9.041 146**

1 Plastic bodied electrode, BlueLine 22 pH

SCHOTT® Instruments pH combination electrode with plastic body, Ag/AgCl reference system and plug head LB 1A or LB 1BNC cable combination please order separately.
Use: Universal application in chemical, pharmaceutical and food industries, and in water/waste water plants and for field use.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 80°C
pH range:	0 to 14pH
Temperature sensor:	No
Length/Dia.:	120mm/12mm
Electrolyte:	Gel
Junction:	Fibre
Membrane resistance at 25°C:	400MΩ
Refill hole cover:	No refill hole

Type	PK	Cat. No.
BlueLine 22 pH	1	**9.041 147**

2 Electrode BlueLine 23 pH

As BlueLine 22 pH, but with 1 metre long x 3mm diameter fixed cable and DIN plug.

SI Analytics GmbH

Type	PK	Cat. No.
BlueLine 23 pH	1	**9.041 148**

3 Electrode, BlueLine 24 pH, with temperature sensor

SCHOTT® Instruments pH combination electrode with plastic body, Ag/AgCl reference system and 1 metre fixed cable with 5mm DIN and 4mm pin plug connections.
Applications: Universal use, such as in water supply and effluent treatment departments of chemical, pharmaceutical and food factories and for field use.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 80°C
pH range:	0 to 14pH
Temperature sensor:	NTC 30kΩ
Length/Ø:	120mm/12mm
Electrolyte:	Gel
Diaphragm:	Fibre
Membrane resistance at 25°C:	400MΩ
Refill hole cover:	No refill hole

Type	PK	Cat. No.
BlueLine 24 pH	1	**9.041 149**

4 Electrode, BlueLine 25 pH

As BlueLine 24 pH, but without temperature sensor and with 1 metre long, 3mm dia. fixed cable, BNC plug.

SI Analytics GmbH

Type	PK	Cat. No.
BlueLine 25 pH	1	**9.041 150**

5 Electrode, BlueLine 26 pH, with temperature sensor

As BlueLine 24 pH, but with built-in ATC, 1 m long, 5mm dia. fixed cable, BNC plug and 4mm banana plug.

SI Analytics GmbH

Type	PK	Cat. No.
BlueLine 26 pH	1	**9.041 151**

1

1 Electrode, BlueLine 27 pH, for surface measurements

SCHOTT® Instruments pH-combination electrode with glass body, Ag/AgCl reference system and plug-in head. LB 1A or LB 1BNC cable combination please order separately. Specially suitable for surface measurements.

SI Analytics GmbH

Specifications:

Temperature range:	-5 to 50°C
pH range:	2 to 13 pH
Temperature sensor:	no
Length/Dia.:	120mm/12mm
Electrolyte:	Referid®
Diaphragm:	Annular space
Membrane resistance at 25°C:	400 MΩ
Refill hole cover:	No refill hole

Type	PK	Cat. No.
BlueLine 27 pH	1	**9.041 152**

2

2 Redox (ORP) electrodes, BlueLine 31 RX

SCHOTT® Instruments Redox combination electrode with glass body, Ag/AgCl reference system and plug head. LB 1A or LB 1BNC cable combination please order separately. Application: Universal applications in chemical and food industries.

SI Analytics GmbH

Specifications:

Temperaturbereich:	-5 to 100°C
Sensor:	Pt disc
Temperature sensor:	No
Length/Dia.:	120mm/12mm
Electrolyte:	liquid, KCl 3mol/l
Junction:	Ceramic
Membrane:	Platinum
Refill hole cover:	Slide

Type	PK	Cat. No.
BlueLine 31 RX	1	**9.041 153**

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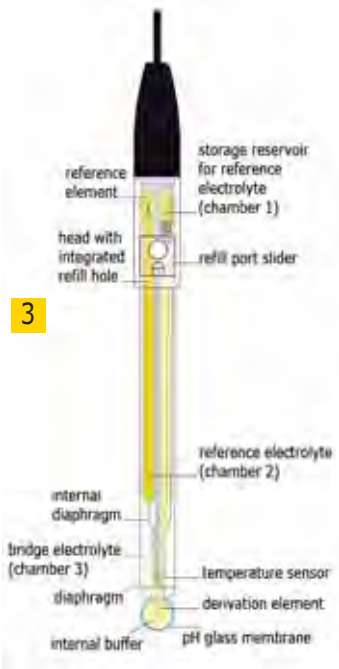

3 4 SCHOTT® Instruments electrodes, IoLine

pH electrodes for the most demanding measuring tasks

SI Analytics GmbH

The new SCHOTT® Instruments IoLine electrode family with iodine/iodide reference system has been developed to meet the most demanding laboratory measurement tasks. These electrodes are 100% metal ion free and hence ideally suited for measurements that may cause sample contamination by such ions (e.g. silver ions) and for pH measurements in Tris buffers too.

Advantages of IoLine Electrodes over classical Ag/AgCl reference systems are notably by:
- longer service life thanks to a patented three-chambers Iodine reservoir in the reference electrode.
- fast reaction, precise measurement and clearly improved stability of measurement values, especially with changing temperatures or at temperatures other than the calibration temperature. This is due to the lower temperature sensitivity of the iodine/iodide reference potential.
- free choice of the bridge electrolyte, hence optimum adaptation to the sample by double electrolyte system.

4

The electrodes are available in different membrane glass shapes and types and with different plugs to ensure that the user gets the instrument best suited to his needs. ID versions are available for use with Schott Instruments ProLab line of high-end laboratory meters.

IoLine electrodes are the right choice for the most critical pH measurements in research and quality control in pharmacy, biotechnology or food industry.

Specifications:

Temp. range	-5 to +100°C
Zero point	pH = 7.00 ±0.25
pH range	0 to 14
Shaft material	Glass
Diaphragm:	Platinum

Type	Length mm	PK	Cat. No.
IoLine-pHT-A 120-MF*	120	1	**9.041 163**
IoLine-pHT-A 170-MF*	170	1	**9.041 164**
IoLine-pHT-A 120-MF-DIN	120	1	**9.041 165**
IoLine-pHT-A 120-MF-DIN N**	120	1	**9.041 166**
IoLine-pHT-A 170-MF-DIN N**	170	1	**9.041 167**

*S7
**banana plug

1 SCHOTT® Instruments ID-Electrodes for pH measurement

SI Analytics GmbH

Specifications

Shaft material:	glass
Zero point:	pH = 7.00 ±0.25
pH range:	0 to 14
Fixed cable:	1m long, with DIN (BNC plug available on request)

Type	PK	Cat. No.
A 7780 1M-DIN-ID	1	**6.235 995**
A 157 1M-DIN-ID	1	**9.041 156**

1

2 Cable combinations, LB 1 A and LB 1 BNC

For BlueLine pH electrodes, ScienceLine and IoLine. *SI Analytics GmbH*

Type	PK	Cat. No.
LB1-A	1	**9.041 303**
LB1-BNC	1	**9.041 304**

2

Combination pH Electrodes

SI Analytics GmbH

Type	PK	Cat. No.	
Combination electrode N 6000 A	1	**9.041 160**	3
Combination pH electrode N 1042 A	1	**9.041 217**	4

3

9.041 160

4

9.041 217

5 Metal (ORP) electrodes, ScienceLine

SI Analytics GmbH

Type	PK	Cat. No.
Redox electrode Pt 6280	1	**9.041 207**
Electrode Ag 6280	1	**9.041 211**

5

6 SCHOTT® Instruments pH-Electrodes ScienceLine

With plug head, glass shaft, ceramic diaphragm, 3mol/l KCl electrolyte, 12mm dia. spherical membrane. pH range: 0 to 14. *SI Analytics GmbH*

Type	Temp. range °C	Length mm	Material	PK	Cat. No.
N 6280, with plug head	-5 ... +100	120	N-glass	1	**9.041 117**
N 6180	-5 ... +100	170	N-glass	1	**9.041 180**
N 42 A	-5 ... +100	120	A-glass	1	**9.041 182**

6

7 SCHOTT® Instruments pH-combination electrodes

With plug head, glass shaft, platinum diaphragm, 3mol/l KCl electrolyte, Silamid® reference system and 12mm dia. spherical membrane. *SI Analytics GmbH*

Type	Temp. range °C	Length mm	Material	PK	Cat. No.
N 61	-5 ... +100	170	A-glass	1	**9.041 100**
H 61	+10 ... +100	170	H-glass	1	**9.041 105**
N 62	-5 ... +100	120	A-glass	1	**9.041 110**
H 62	+10 ... +100	120	H-glass	1	**9.041 112**
N 64	-5 ... +100	170	A-glass	1	**9.041 120**

7

8 Accessories for combination electrodes

Connection cable for pH electrodes with plug head connection to plugs as indicated. *WTW*

Type	Connector	Cable m	PK	Cat. No.
AS/DIN	DIN	1	1	**9.040 895**
AS/DIN-3	DIN	3	1	**9.040 896**
AS/BNC	BNC	1	1	**9.040 897**

8

1

1 Electrode stand

With flexible electrode holder for two electrodes and temperature sensor. *WTW*

Type	PK	Cat. No.
Electrode stand	1	**9.040 870**

2

2 pH-Electrode LIQ-GLASS

NEW!

Hamilton

- Robust, combination pH electrode for daily laboratory use
- Universally applicable, in strong acids as well as in strong bases
- Ideally suited for acid/base titrations
- Serial number, certificate

Specifications:

Temperature range:	-10 to 100°C
pH range:	0 to 14 pH
Electrolyte:	3M KCl (refillable)
Shaft material:	glass
Diaphragm:	ceramic
Reference system:	EVEREF
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
LIQ-GLASS	1	**2.000 520**

3

3 pH-Electrode POLILYTE LAB

NEW!

Hamilton

- Maintenance-free, robust, combination easy-to-use pH electrode
- Universally applicable, well suited for measurements in emulsions and suspensions
- Thanks to the SINGLE PORE clogging of the diaphragm is practically impossible
- Serial number, certificate

Specifications:

Temperature range:	-10 to 80°C
pH range:	0 to 14 pH
Electrolyte:	Poli solve (maintenance-free)
Shaft material:	glass
Diaphragm:	SINGLE PORE
Reference system:	EVEREF-B
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
POLILYTE LAB	1	**7.600 302**

4

4 pH-Electrode FLUSHTRODE

NEW!

Hamilton

- Easy-to-clean, combination glass electrode with sleeve diaphragm
- Ideally suited for viscous samples, ion-weak media, or media containing protein (e.g. cosmetics)
- For samples containing protein, the electrolyte should be replaced with Protelyt (6.801 556)
- Serial number, certificate

Specifications:

Temperature range:	-10 to 80°C
pH range:	0 to 14 pH
Electrolyte:	3M KCl (refillable)
Shaft material:	glass
Diaphragm:	sleeve diaphragm
Reference system:	EVEREF
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
FLUSHTRODE	1	**6.800 798**
Electrolyte solution Protelyte (100ml)	1	**6.801 556**

E & OE.

1 pH-Electrode GEL-GLASS

NEW!

Hamilton

- Maintenance-free, excellent value, pH electrode for less rigorous applications
- Serial number, certificate

Specifications:

Temperature range:	-10 to 60°C
pH range:	0 to 14 pH
Electrolyte:	gel (maintenance-free)
Shaft material:	glass
Diaphragm:	ceramic
Reference system:	Ag/AgCl
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
GEL-GLASS	1	**6.204 431**

1

2 pH-Electrode MINITRODE

NEW!

Hamilton

- Combination pH electrode with shaft diameter 3mm for measurements in very small volumes, e.g. vials
- Long-term-stable EVEREF system
- Requires an immersion depth of only 7mm
- Serial number, certificate

Specifications:

Temperature range:	-10 to +100°C
pH range:	0 to 14 pH
Electrolyte:	3M KCl (refillable)
Shaft material:	glass
Diaphragm:	ceramic
Reference system:	EVEREF
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
MINITRODE	1	**6.300 498**

2

3 pH-Electrode FOODTRODE

NEW!

Hamilton

- Robust, combination pH electrode for measurements in media containing proteins
- 3 ceramic diaphragms guarantee quick and accurate measurements
- Easy to clean
- Long-term-stable, thanks to EVEREF system
- Serial number, certificate

Specifications:

Temperature range:	-10 to +100°C
pH range:	0 to 14 pH
Electrolyte:	Protelyte (refillable)
Shaft material:	glass
Diaphragm:	3 x ceramic
Reference system:	EVEREF
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
FOODTRODE	1	**7.620 639**
Electrolyte solution Protelyte (100ml)	1	**6.801 556**

3

1

1 pH-Electrode DOUBLE PORE

NEW!

Hamilton

- Maintenance-free, combination pH puncture electrode
- Especially for use with solid and semisolid samples
- Ideally suited for measurements in meat and cheese
- SINGLE PORE makes clogging of the diaphragm practically impossible
- Serial number, certificate

Specifications:

Temperature range:	-10 to +60°C
pH range:	0 to 14 pH
Electrolyte:	POLISOLVE (maintenance-free)
Shaft material:	glass
Diaphragm:	2 x SINGLE PORE
Reference system:	Ag/AgCl
Temperature sensor:	no
Electrical connection:	S7 connector head

Type	PK	Cat. No.
DOUBLE PORE	1	**6.201 033**

2

6.8020 338

pH-Electrodes POLYPLAST

NEW!

Hamilton

- Robust, maintenance-free, combination pH electrode
- Shatter-proof plastic shaft
- Exellent for water and sewage
- Serial number, certificate

Specifications

Temperature range:	0 to +60°C
pH range:	0 to 14 pH
Electrolyte:	POLISOLVE (maintenance-free)
Shaft material:	Plastic
Diaphragm:	SINGLE PORE
Reference system:	Ag/AgCl

Type	Temperature sensor	Connection	PK	Cat. No.
POLYPLAST	no	S7 connector head	1	**6.802 338** 2
POLYPLAST BNC	no	1m cable with BNC Plug	1	**6.232 325**
POLYPLAST TEMP DIN	NTC 30 kOhm	1m DIN cable / 1 x 4mm banana plug	1	**6.206 824**

3

3 pH buffer solutions in sachets with certificate of analysis

Hanna

One 20ml sachet is sufficient for each calibration. Sachets are well sealed and protected against light. Single use only, so no risk of contamination. Accuracy: ±0.01 pH at 25°C.
The outer box contains a certificate of analysis, showing the date of production and Lot Nr. (Expiry date).
The solutions are produced again NIST standards.

pH-value at 25 °C	PK	Cat. No.
pH 4.01	25	**6.803 609**
pH 7.01	25	**6.803 610**
pH 10.01	25	**6.803 611**

4

4 pH buffer solutions

Reagecon

Clear, Colourless Solutions. Tested and Certified at 20°C, produced in accordance with NIST standard (NBS). Available in 500ml or 1L containers. Accuracy ±0.01 pH.

pH-value at 20 °C	Capacity ml	PK	Cat. No.
pH 2.00	500	1	**6.228 059**
pH 3.50	1000	1	**7.632 597**
pH 4.00	500	1	**9.040 911**
pH 4.00	1000	1	**9.040 912**
pH 6.00	500	1	**6.203 561**
pH 6.00	1000	1	**6.321 027**
pH 6.80	500	1	**6.206 693**
pH 6.865	500	1	**7.900 066**
pH 7.00	500	1	**9.040 913**
pH 7.00	1000	1	**9.040 914**
pH 9.00	500	1	**6.225 161**
pH 9.00	1000	1	**6.206 691**
pH 10.00	500	1	**9.040 915**
pH 10.00	1000	1	**9.040 916**
pH 12.00	500	1	**6.234 641**

1 2 pH buffer solutions (Coloured)

Coloured solutions. Tested and Certified at 20°C. Formulated in accordance with NIST standards (NBS). Supplied in 500ml, 1L or 5L containers. Tolerance ±0.01 pH. *Reagecon*

pH-value at 20 °C	Capacity ml	Colour	PK	Cat. No.
pH 4.00	500	Red	1	**9.040 920**
pH 4.00	1000	Red	1	**9.040 921**
pH 4.00	5000	Red	1	**9.040 922**
pH 7.00	500	Yellow	1	**9.040 923**
pH 7.00	1000	Yellow	1	**9.040 924**
pH 7.00	5000	Yellow	1	**9.040 925**
pH 10.00	500	Blue	1	**9.040 926**
pH 10.00	1000	Blue	1	**9.040 927**
pH 10.00	5000	Blue	1	**9.040 928**

1

2

3 pH buffer solutions with colour code, with/without certificate

Colored buffer solutions, standardized against NIST references, accuracy ±0.01 pH at 25°C, 500ml bottles with label that indicates correlation between pH-value and temperature. *Hanna*

pH-value at 25 °C	Description	PK	Cat. No.
pH 7.01	with certificate	1	**6.225 206**
pH 4.01	with certificate	1	**6.225 208**
pH 10.01	with certificate	1	**6.225 207**
pH 7.01	without certificate	1	**6.053 384**
pH 4.01	without certificate	1	**6.053 383**
pH 10.01	without certificate	1	**6.090 412**

3

Storage and cleaning solutions for electrodes

Hanna

Type	PK	Cat. No.
Storage Solution, 500ml	1	**9.773 987**
Cleaning solution, general purpose, 500ml	1	**6.080 217**
Cleaning solution for proteins, 500ml	1	**6.223 522**

4 Technical pH buffer solutions

NEW!

Colour coded. Tested and Certified at 25°C. Provided with label that gives the pH value at different temperatures. Tolerance ±0.02 pH. *Reagecon*

These buffer solutions are suitable for use where very accurate measurements are required. All buffers are supplied with a detailed Certificate of Analysis which outlines traceability to N.I.S.T (the N.I.S.T SRM(s) Lot No. is stated on the certificate). Temperature dependence data is printed on the label as are lot numbers and expiry dates.
This item has a 24 month shelf life from date of manufacture.

pH-value at 25 °C	Capacity ml	Colour	PK	Cat. No.
2.0	250	Red	1	**9.040 949**
4.01	250	Red	1	**9.040 950**
4.01	500	Red	1	**6.206 907**
4.01	1000	Red	1	**9.040 955**
7.02	250	Yellow	1	**6.240 744**
7.02	500	Yellow	1	**6.229 762**
7.02	1000	Yellow	1	**6.238 677**
9.21	250	Blue	1	**9.040 951**
10.00	250	Blue	1	**6.240 745**
10.00	1000	Blue	1	**6.238 676**

4

5 Standard buffer solutions

To DIN/NIST. Supplied in 250ml bottles. *WTW*

pH-value at 25 °C	PK	Cat. No.
4.01	1	**9.040 744**
6.87	1	**9.040 746**
9.18	1	**9.040 749**

5

1

1 Buffer solutions, sterile

Steam sterilised. Individually batch numbered. Without preservatives. *SI Analytics GmbH*

Type	Capacity	PK	Cat. No.
pH 4.01	250ml DURAN® bottle	1	**9.041 004**
pH 6.87	250ml DURAN® bottle	1	**9.041 007**
pH 9.18	250ml DURAN® bottle	1	**9.041 009**

Other buffer solutions available on request.

2

2 Technical buffer solutions

Identified by colour-coded labels. *WTW*

Type	pH-value	Capacity ml	PK	Cat. No.
STP 4	4.01	50	1	**9.040 734**
TEP 4	4.01	1000	1	**9.040 722**
STP 7	7.00	50	1	**9.040 735**
TEP 7	7.00	1000	1	**9.040 723**
TEP 10	10.00	1000	1	**9.040 724**
TEP 10 TRACE	10.01*	1000	1	**9.040 725**
TPL 4	4.01	250	1	**9.040 727**
TPL 7	7.00	250	1	**9.040 728**
TPL 10	10.00	250	1	**9.040 729**

* For handheld meters 315i, 330i, 340i, 350i, 3110, 3210, 3310 and Inolab® 720, 730, 740 and 750.

3

3 SCHOTT® Instruments pH buffer solutions

Without colour coding. Stated pH values at 25°C. Available in 250ml containers. Shelf life approx. 2 years, accuracy ±0.02 pH. Calibration set for pH measurement.
Set contains 20 x 17ml ampoules filled with pH 4.00, 7.00 and 10.00 solutions (at 25°C). *SI Analytics GmbH*

Type	Capacity ml	Colour	PK	Cat. No.
pH 4,00	250	clear	1	**9.041 043**
pH 7,00	250	clear	1	**9.041 045**
pH 10.01	250	clear	1	**9.041 048**
Set	17	3 x 20 x 17 ml ampoules	1	**9.041 081**

4

4 SCHOTT® Instruments pH buffer solutions

Colour coded. pH values at 25°C. Provided with label that gives the pH value at different temperatures. Supplied in 250ml containers. Tolerance ±0.02 pH. *SI Analytics GmbH*

Type	Capacity ml	Colour	PK	Cat. No.
pH 4.01	250	yellow	1	**9.041 050**
pH 7.00	250	green	1	**9.041 051**
pH 10.01	250	orange	1	**9.041 052**

5

5 Regeneration solution and storage solution

For pH-probes. *SI Analytics GmbH*

Type	Capacity ml	PK	Cat. No.
Regeneration solution / Storage solution	250	1	**9.041 034**

1 Calibration and maintenance solution set SORT/K

Supplied in box with three 250ml bottles of pH 4.01, 6.87, 9.18 buffer solutions, pepsin cleaning solution and KCl filling solution 3mol/l. *WTW*

Type	PK	Cat. No.
SORT/K	1	**9.040 760**

1

2 KCL electrolyte solutions

NEW!

For refilling or replacing reference electrolyte. Supplied in 250ml bottles. *Reagecon*

Type	PK	Cat. No.
3 mol/l KCL, free from silver ions, 250ml	1	**9.040 957**
3 mol/l KCL, saturated with AgCl, 250ml	1	**9.040 958**

2

3 Cleaning and storage solutions for pH-probes

Reagecon

Type	Capacity ml	PK	Cat. No.
Pepsin / HCL, for cleaning media containing protein	500	1	**9.040 940**
Thiourea / HCL, for cleaning media containing sulphide	500	1	**9.040 941**
Organic cleaning solution	500	1	**9.040 942**
Regeneration solution	100	1	**9.040 943**
Storage solution	100	1	**9.040 945**
Storage solution	500	1	**9.040 944**

3

4 KCL electrolyte solutions, test solutions

For refilling or replacing reference electrolyte. Supplied in 250ml DURAN® bottles. Redox buffer solutions available on request. *SI Analytics GmbH*

Type	PK	Cat. No.
2mol/L KNO_3 + 0.001mol/l KCI for Ag-probes	1	**9.041 072**
3 mol/l KCl	1	**9.041 092**
3 mol/l KCI, Ag/AgCl saturated	1	**9.041 036**
4.2 mol/l KCl	1	**9.041 033**

4

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1 Redox buffer solution

For testing ORP electrodes. 427mV, pH7.
Supplied in pack of 250ml.

WTW

Type	PK	Cat. No.
Redox	1	**9.040 782**

2

2 Pepsin cleaning solution PEP/pH

DIN. Supplied in bottles of 250ml.

WTW

Type	PK	Cat. No.
Pepsin cleaning solution	3	**9.040 796**

3

3 Conductivity testers, DIST 3 and DIST 4

Pocket measuring device with digital display for testing the conductivity in drinking water and industry

Hanna

DIST 3:
suitable for measuring drinking water, reverse osmosis monitoring and in the laboratory.

DIST 4:
ideal for measurements required in industry, horticulture, sewage, cooling towers.

Specifications:

Measuring range:	DIST 3: 0 to 1990µS DIST 4: 0 to 19.90mS
Resolution:	DIST 3: 1µS/cm DIST 4: 0.01mS
Accuracy:	±2% measuring range
Batteries:	4 x 1.5V button cells (MP 675H)
Dimensions:	175 x 41 x 23mm
Weight:	78g

Type	PK	Cat. No.
DIST 3	1	**9.704 010**
DIST 4	1	**9.704 014**

1 Conductivity testers, Dist 5 and Dist 6

Hanna

Watertight pH-/ conductivity-/ TDS- /°C-testers. Simultaneous display of conductivity and/or TDS and temperature values. Automatic temperature compensation for highest measuring accuracy. User selection of temperature coefficient enables use in alkaline and acidic media. Stability indicator prevents incorrect measurements

Specifications:

Measuring range:	DIST 5 : 0 to 3990mS (0 to 2000ppm) DIST 6 : 0 to 20.00mS (0 to 10.00ppm)
Temperature range:	0.0 to 60.0°C
Resolution EC/TDS:	±2% in each measuring range
Resolution:	±0.5°C
Batteries:	4 x 1.5V button cells
Operating temp. range:	0 to 50.0°C
Weight:	100g

Type	PK	Cat. No.
DIST 5	1	**9.704 012**
DIST 6	1	**9.704 013**

2 Conductivity meter HI 8733

Hanna

- Multi range conductivity meter for laboratory use
- Can be used for various applications from deionized water to brine
- Automatic temperature enables highest accuracy
- For various strong acids or bases the temperature coefficient can be adjusted between 0% and 2.5% per °C
- Instrument is supplied with 4-ring, potentiometric probe for all 4 ranges

Specifications:

Ranges/Resolution:	0.00 to 199µS/0.1 µS 0 to 1999µS/1 µS 0 to 19.99mS/0.01mS 0 to 199.9mS/ 0.1mS
Accuracy:	±1% Full Scale
Temperature compensation:	automatic from 0 to +50°C
Calibration:	manual single point trough trimmer
Battery:	1 x 9 Volt
Operating temp. range:	0 to +50°C
Dimensions:	164 x 76 x 45mm
Weight:	500g

Type	PK	Cat. No.
HI 8733N	1	**9.704 016**

1

1 Conductivity meters HI 99300/HI 99301

NEW!

Hanna

- Waterproof conductivity meters with microprocessor
- Conductivity (or TDS value) and temperature are displayed simultaneously
- Automatic temperature compensation from 0 to 60.0°C
- Temperature compensation coefficient is adjustable from 0 to 2.4%/°C
- Automatic one point calibration with conductivity solution 1413µS (HI 99300) or 12.880µS (HI 99301)

Supplied with:
Conductivity probe with 1 meter cable, 4x 1.5V AAA alkaline batteries and transport case

Specifications:

Measuring range/Resolution EC:	
HI 99300:	0 to 3999µS/1µS
HI 99301:	0.00 to 20.00mS/0.01mS
Measuring range/Resolution TDS:	
HI 99300:	0 to 2000ppm (mg/l)/1ppm (mg/l)
HI 99301:	0.00 to 10.00ppt (g/l)/0.01ppt (g/l)
Accuracy:	±2% full scale
Measuring range/Resolution T:	0.0 to 60°C/±0.5°C
Battery:	4 x 1.5V
Dimensions (L x W x H):	143 x 80 x 38mm
Weight:	210g

Type	PK	Cat. No.
HI 99300	1	**7.618 482**
HI 99301	1	**6.240 795**

2

2 Conductivity meter HI 9033

Waterproof housing, perfect for laboratory and field work.

Hanna

- 4 different ranges from 0 to199.9mS can be selected by simply pressing a button
- automatic temperature compensation grants highest accuracy
- manual calibration at 1 point trough trimmer

Supplied in a transport case, complete with 4 ring conductivity probe with 1 metre cable, calibration screwdriver and battery.

Specifications:

Measuring range/Resolution:	0.0 to 199.9µS/0.1µS 0 to 1999 µS/1 µS 0 to 19.99 mS/0.1 mS 0 to 199.9 mS/1 mS
Accuracy:	±1% full scale
Temperature compensation:	automatically from 0 to 50°C
Operating range:	0 to 50°C
Battery:	1 x 9V
Weight:	1kg (incl. transport case)

Type	PK	Cat. No.
HI 9033	1	**6.095 234**

Pocket conductivity meters ProfiLine

The new ProfiLine hand-held conductivity meters have a waterproof (IP 67) housing and a new, completely sealed silicone membrane keypad with tactile feedback. A separate battery compartment allows easy exchange of standard alkaline, or rechargeable, batteries. The carefully laid out, large displays indicate the reading and other important information. 3210 and 3310 series meters have a backlit, graphics display and menu-controlled operation. A selection of application specific conductivity cells cover virtually all measurement tasks.

1 2 Portable conductivity meter Cond 3110

WTW

Easy to operate rugged conductivity meter for measurement of conductivity and salinity. Simplified keypad for clear and secure operation. Simultaneous display of measurement value and temperature. Large LCD display for easy reading. Automatic nIF compensation for all grades of natural water. Works with four-electrode cell TetraCon® 325 or two-electrode cell KLE 325.

Specifications

Measuring ranges/Resolution

Conductivity:	0.0µS/cm to 1000mS/cm with 5 measuring ranges in the Auto Range mode
Temperature:	-5.0°C to +105.0°C ±0.1°C
Salinity:	0.0 to 70.0
T_{ref}:	20°C/25°C switchable

Type	Description	PK	Cat. No.
Cond 3110	meter only	1	**9.774 372**
Cond 3110 Set 1	cased set including conductivity probe TetraCon 325 and accessories	1	**9.774 358**
Cond 3110 Set 2	cased set including conductivity probe TetraCon 325 (3m) and accessories	1	**9.774 403**
Cond 3110 Set 3	cased set including conductivity probe KLE 325 and accessories	1	**9.774 404**

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3 Portable conductivity meter Cond 3210

WTW

Convenient and versatile, hand-held, conductivity meter with backlit graphics display and menu-controlled operation. Waterproof and robust. For the measurement of conductivity, specific resistivity, salinity and TDS. Includes a 200 x GLP-compliant record memory. Wide selection of different conductivity cells attachable. Automatic and manual temperature compensation with linear temperature function and non-linear function for ultra-pure water and natural water in accordance with EN 27888.

3

Specifications

Measuring ranges/Resolution:

Conductivity:	as Cond 3110, but additionally with 0.00µS/cm to 19.99µS/cm (when K=0.1cm^{-1}) 0.000µS/cm at 1.999µS/cm (when K=0.01 cm $^{-1}$)
TDS:	0 to 1999mg/l 0.0 to 199.9g/l
Spec. resistance:	0.0 to 999MΩ/cm
Memory:	200 data records (measured value, temperature, date, time, ID)

Type	Description	PK	Cat. No.
Cond 3210	meter only	1	**9.774 379**
Cond 3210 Set 1	cased set including conductivity probe TetraCon 325 and accessories	1	**9.774 398**
Cond 3210 Set 2	cased set including 4-pole conductivity probe TetraCon 325 (3m) and accessories	1	**9.774 405**
Cond 3210 Set 4	cased set including 2-pole conductivity probe LR 325 / 01and accessories	1	**9.774 399**

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1 2 Conductivity meter Cond 3310

Comfortable and versatile conductivity meter with integral, time controlled, data logger and 5000 GLP-compliant record memory for extended data collection. Menu controlled, with backlit, graphics display for comfortable, safe operation. Wide range of conductivity cells attachable. *WTW*

GLP-supporting functions, enhanced choice of cell constants, automatic and manual temperature compensation (which can be switched off) with linear and non-linear functions for pure water and natural waters acc. to EN 27888.

Specifications:

Measuring ranges/Resolution:	
Conductivity:	as Cond 3110, but additionally with 0.00µS/cm to 19.99µS/cm (when K=0.1cm^{-1}) 0.000µS/cm at 1.999µS/cm (when K=0.01 cm $^{-1}$)
TDS:	0 to 1999mg/l, 0.0 to 199.9g/l
Spec. resistance:	0.0 to 999MΩ/cm
Memory:	5000 records (measured value, temperature, date, time, ID)

Type	Description	PK	Cat. No.
Cond 3310	meter only	1	**9.774 409**
Cond 3310 Set 1	case set including conductivity probe TetraCon 325 and accessories	1	**9.774 400**
Cond 3310 Set 2	case set including 4-pole conductivity probe TetraCon 325 (3m) and accessories	1	**9.774 401**
Cond 3310 Set 4	case set including 2-pole conductivity probe LR 325 / 01 and accessories	1	**9.774 402**

3

3 VARIO C_{ond} Set conductivity instrument

The VARIO C_{ond} has a lot to offer. This instrument was designed with ergonomic requirements in mind. It is ideal for service work and inspection measurements on process equipment. The TetraCon® 325 measuring cell, recognised around the world, was shortened and modified especially for the VARIO C_{ond}. If that is not enough; an adapted ultra-pure water cell with plug-in head and flow-through vessel can also be used with the VARIO C_{ond} *WTW*

Specifications:

Measurement range/Resolution	
Conductivity:	0.0µS/cm to 200mS/cm
Temperature:	-0.5 to +105.0°C
Salinity:	0.0 to 70.0°C
TDS:	0 to 1999mg/l
Spec. resistance:	0.000 to 1999 Mohm/cm
Accuracy (±1 digit)	
Conductivity:	±0.5% of measurement
Temperature:	±0.1K
Reference temp. (T_{ref}):	selectable 20°C or 25°C
Cell constant:	fixed 0.475 cm^{-1}, 0.1 cm^{-1}
Temperature comp.:	automatic or switched off
Temperature coefficient:	- non-linear function of natural water (nLF) per EN 27888 and ultra-pure water function - linear compensation of 0.01 to 2.99%/K - no compensation

Type	Description	PK	Cat. No.
VARIO C_{ond} Set A	incl. transport case, TetraCon® 325 and KCL solution	1	**9.774 390**
VARIO C_{ond} Set B	incl. transport case and LR 01/V	1	**9.774 391**

The new inoLab® series from WTW

The new inoLab® benchtops are perfectly designed for modern laboratory surroundings. The key pads are clearly outlined and easy-to-operate, their smooth surfaces are easy-to-clean and the operation is self-explanatory. Depending on the type, they have a seven segment display or a backlit black and white graphical display, as well as a USB interface. All meters include a universal power supply and a convenient stand with sensor support. If desired they can be ordered in application oriented sets including sensors and accessories. *WTW*

1 Laboratory instrument inoLab® Cond 7110

NEW!

WTW

Modern conductivity measurement is east to do. the inoLab® Cond 7110 has all important functions for measuring conductivity like adjustable reference temperature and different methods of temperature compensation. A big LCD segment display makes readings easy and a well-arranged keypad provides convenient operation. The automatic AutoRead function supports correct and repeatable results. Each meter come with a stand and accessories.

1

Specifications

Ranges:	All values ±1 digit
Conductivity:	0.00 … 1000 mS/cm ±0.5 % v. Mw. 0.00 … 19.99 µS/cm at K= 0.1 cm^{-1})
Salinity:	0.0 … 70.0 (acc. IOT)
Temperature:	-5.0 … 105.0°C ±0.1°C
Cell constants:	0.450…0.500cm^{-1}, 0.09 … 0.110cm^{-1}, 0.800 to 0.880cm^{-1}
AutoRead:	automatic
Tref:	20°C/25°C
Temperature compensation:	nLF, lin 0.000 … 3.000%, switch off
Power supply:	Universal power supply, 100V to 240V, 50/60Hz, 4 x 1.5V AA or 4 x 1.2V NiMH

Type	Description	PK	Cat. No.
Cond 7110	Meter only including accessories	1	**9.920 096**
Cond 7110 Set 1	Meter including TetraCon® 325 and accessories	1	**9.920 097**
Cond 7110 Set 3	Meter including KLE 325 and accessories	1	**9.920 098**

Conductivity meter inoLab® Cond 7310

NEW!

WTW

This is the new inoLab® Cond 7310 or inoLab® Cond 7310P. A modern backlit graphic display with menu controlled user interface allows easy and intuitive operation. The mini USB-B interface provides fast data transfer to a PC. The internal memory can record up to 5000 GLP complying data including ID, date and time. The housing and the keypad are easy-to-clean.
The inoLab® Cond 7310 has the possibility to connect different standard and special conductivity electrodes and has automatic and manual temperature compensation (can even be switched off for pure water measurements according pharmacopeia) for linear and non-linear function according EN 27 888. An integrated thermal printer (58mm width) is ready for printout of the measured data (option). The scope of delivery includes meter, stand, power supply and USB cable.

2

9.920 114

3

9.920 117

Specifications

Ranges:	All values ±1 digit
Conductivity additional:	0.00 … 1000 mS/cm ±0.5 % v. Mw. 0.000 … 1.999 µS/cm, K= 0.01 cm^{-1} 0.00 … 19.99 µS/cm, K= 0.1 cm^{-1}
Spcific resistance:	0.00 … 20 MOhm cm
Salinity:	0.0 … 70.0 (acc. IOT)
TDS:	1 … 1999 mg/l, 0 to 199.9 g/l
Temperature:	-5.0 … 105.0°C ±0.1°C
Cell constants:	Fix 0.01 cm-1, for calibration 0.450…0.500 cm-1, 0.800 … 0.880 cm^{-1}, adjustable 0.09 … 0.110cm^{-1}, 0.250 … 25.0cm^{-1}
Calibration:	1 point
Tref:	20°C/25°C
Temperature compensation:	none, nlF, 0.000 … 10.00 %/K
Calibration memory:	Up to 10 calibrations recallable
Display:	LCD Graphic, backlit
Memory:	manual 200/5000 automatic
Logger:	manual/time controlled
Interface:	Mini USB-B
Power supply:	Universal power supply, 100V to 240V, 50/60Hz, 4 x 1.5V AA or 4 x 1.2V NiMH

Type	Description	PK	Cat. No.	
Cond 7310	Meter incl. accessories	1	**9.920 114**	2
Cond 7310 Set 2	Meter incl. TetraCon® 325 and accessories	1	**9.920 115**	
Cond 7310 Set 6	Meter incl. USP Kit 1	1	**9.920 116**	
Cond 7310P	Meter with built-in printer and accessories	1	**9.920 117**	3
Cond 7310P Set 1	Meter with built-in printer, incl. TetraCon® 325 and accessories	1	**9.920 118**	
Cond 7310P Set 6	Meter incl. USP Kit 1	1	**9.920 119**	

1 Conductivity Meter AL20Con Set

AQUALYTIC

The new, microprocessor-controlled, AL20 hand-held meter range meets the day-to-day demand for sturdy and reliable sytems for the measurement of pH or redox, conductivity/TDS, temperature and dissolved oxygen.
The water-tight housing complies with IP67 and is fitted with protective armouring to ensure reliable operation, even in extreme ambient conditions. The support can be flipped up to hang the meter on pipes or branches.

- battery operation period 1500 hours and more (4 x 1.5V type AA batteries)
- auto Hold function
- internal memory for 20 data sets
- 1-point calibration in the range 1000 to 2000µS/cm
- temperature compensation selectable: linear (0.3 to 3.0%/K), non-linear (in acc. with EN 27 888) or no compensation
- 4-pole conductivity measuring cell with integrated temperature-sensor (NTC10kΩ). Electrode material: special graphite, Shaft material: epoxy. Temperature sensor: stainless steel, dimensions: 120 x 12mm L x dia.

Items supplied: AL20Con, batteries, 4-Pole conductivity cell, in case

Specifications:

Conductivity:	0.0 to 200.0µS/cm 0 to 2000µS/cm 0.00 to 20.00mS/cm 0.0 to 200.0mS/cm
Resistance:	0.005 to 100.0kΩ/cm
TDS:	0 to 1999mg/l
Salinity:	0.0 to 70.0g/kg
Accuracy:	±0.5% v MW ±0.5% FS (±3 Digits)
Temperature:	-5.0 to 100.0°C, meter accuracy ±0.3°C
Accuracy:	±0.3K
Cell constant:	0.50 ±0.10cm^{-1}
Reference temperature:	20°C and 25°C
Nominal temperature:	25°C
Operating temperature	
Sensor:	0 to 50°C
Measuring cell:	-5 to 80°C (up to 100°C for short periods)
Power consumption:	approx. 3 mA
Auto-Off Function:	0 to 120min

Type	PK	Cat. No.
AL20Con Set	1	**9.699 255**

Accessories for Conductivity meter AL20Con

AQUALYTIC

Type	PK	Cat. No.
Electrode for CD 24, 4-pole	1	**9.699 256**
Calibration solution 1413µS/cm, 500ml, according to N.I.S.T	1	**9.699 257**

2 SCHOTT® Instruments Conductivity Meter Lab 970

SI Analytics GmbH

- reliable and precise measurements due to perfect matching with the measuring system consisting of meter, conductivity cell and conductivity testing solution.
- fast and easy documentation complying with GLP through perfect communication via USB (slave) and RS232.
- measuring acc. to USP28.
- complete support including IQ and OQ documentation and qualified service.
- ultimate reliability for measurement and calibration by wireless sensor recognition of ID electrodes.
- the special stand - mounts with one click and the stand is firmly and securely positioned.

Items supplied in set:
- meter
- ID-conductivity cell
- conductivity testing solution
- stand
- universal power supply unit
- cover

Specifications

Conductivity measuring range:	0.000 µS/cm to 500mS/cm
Accuracy (±1digit):	±0.5
Temperature measuring range:	-5.0°C to + 120.0°C
Accuracy (±1digit):	0.1°C

Type	PK	Cat. No.
Lab 970 Set	1	**9.773 853**

E & OE.

1 Conductivity testing solutions

Values stated at 25°C. Supplied in containers as indicated. Accuracy ±2%. *SI Analytics GmbH*

Type	Capacity ml	PK	Cat. No.
147µS/cm*	17	18	**9.041 053**
12.9mS/cm*	17	18	**9.041 055**
1413µS/cm	250	1	**9.041 056**

* Supplied in vials!

Conductivity cell probes

TetraCon® 325 standard conductivity cell probe: *WTW*
4-pole cell with integral temperature sensor. Cable length 1.5 metres.
Measuring range:
1µS/cm to 2S/cm.

9.704 081

LR 325/01 ultra-pure water conductivity cell probe:
With integral temperature sensor and flowthrough vessel D 01/T for measuring very low conductivity ranges (<1 µS/cm) e.g. boiler feed water or deionised water. Cable length 1.5 metres.
Min./max. insertion depth 35/110mm and flowthrough, measuring range: 0.001µS/cm to 200µS/cm.

TetraCon® DU/T conductivity flowthrough cell:
4-pole conductivity cell with integral temperature sensor for standard applications. Connection via 10mm diameter tubing nozzles (the adapter cable KKDU with 1 metre cable is required for connection).
Filling volume 7ml. Measuring range: 1µS/cm to 1000mS/cm.

9.704 078

Type	Electrode	Shaft diameter	Length mm	Cell constant	PK	Cat. No.	
TetraCon® 325	Graphite	Epoxy resin	120	K =0,475	1	**9.704 081**	2
LR 325/01	V4A steel	V4A steel	121	K = 0.1	1	**9.704 083**	
TetraCon® DU/T	Graphite	Epoxy resin	155	K approx. 0.8	1	**9.704 078**	3
KKDU 325	Connection cable	-	100	-	1	**9.704 079**	

4 Conductivity solutions for Conductivity meter HI 8733

Hanna

Type	PK	Cat. No.
12880 µS	1	**9.704 017**
1413 µS	1	**9.704 018**
84 µS	1	**9.773 992**
80.000 µS	1	**9.773 993**

5 Conductivity solutions

Values are outlined at 25°C, manufactured in accordance with NIST standards (NBS). *Reagecon*
Supplied in 500ml bottles as otlined below - accuracy ±1%.

Type	Capacity ml	PK	Cat. No.
1.3 µS/cm	250	1	**6.225 059**
5 µS/cm	500	1	**6.901 629**
10 µS/cm	500	1	**6.901 622**
20 µS/cm	500	1	**6.802 901**
50 µS/cm	500	1	**6.074 754**
84 µS/cm	500	1	**9.040 904**
100 µS/cm	500	1	**6.234 859**
147 µS/cm	500	1	**9.040 905**
200 µS/cm	500	1	**6.802 902**
500 µS/cm	500	1	**6.205 415**
1000 µS/cm	500	1	**6.901 670**
1413 µS/cm	500	1	**9.040 906**
5000 µS/cm	500	1	**6.205 412**
10000 µS/cm	500	1	**6.901 671**
12880 µS/cm	500	1	**9.040 907**
50000 µS/cm	500	1	**6.210 129**
100000 µS/cm	500	1	**6.205 413**
450000 µS/cm	500	1	**6.243 175**

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1 Waterproof Oxygen Meter HI9146

Hanna

DO measurements can be displayed in ppm (mg/l) or in % saturation, together with temperature value. Automatic calibration in the air, at 100%. Automatic temperature compensation from 0 to 50°C. Instrument allows manual compensation of altitude and salinity. Hold-Function allows the user to "freeze" the reading on the LCD. Auto-off after 4 hours of inactivity, input for 12V d.c. adapter.

Waterproof Oxygen Meter supplied complete with Oxygen Probe, electrolyte solution for DO probe (30 ml), 2 membranes, 4 batteries and a hard carrying case.

Measuring range/Accuracy:

O_2 concentration:	0.00 to 45.00mg/l
	±1.5% of Measuring range
O_2 saturation:	0.0 to 300.0%
	±1.5% of Measuring range
Temperature:	0.0 to 50.0°C/±0.5°C

Resolution:

O_2 concentration:	0.01mg/l
O_2 saturation:	0.1%
Temperature:	0.1°C
Temperature compensation:	automatic from 0 to 50°C
Height compensation:	0 to 4km/resolution 0.1km
Salinity compensation:	0 to 80g/l/resolution 1g
Environment:	0 to 50°C
Dimensions:	196 x 80 x 60mm
Weight:	500g

Type	Description	PK	Cat. No.
HI 9146-04	incl. Oxygen Probe with 4m cable	1	**9.773 997**
HI 9146-10	incl. Oxygen Probe with 10m cable	1	**9.773 999**

2 Portable dissolved oxygen meter Oxi 3205

WTW

Robust and easy to use dissolved oxygen meter for standard alkaline, or rechargeable, batteries. Menu-controlled with backlit graphics display for ease of use under all lighting conditions. Suitable for use in harsh environments.

Measuring ranges:

O_2 concentration:	0.00 to 19.99mg/l (19.9mg/l*)
	0.0 to 90.0mg/l (90mg/l*)
O_2 saturation:	0.0 to 199.9% (199%*)
	0 to 600%
Temperature:	-5.0 to +105°C, ±0.1°C
	* when using DurOx oxygen sensor probes

Accuracy:

O_2 concentration:	±0.5% of reading
O_2 saturation:	±0.5% of reading

Type	Description	PK	Cat. No.
Oxi 3205	meter only	1	**9.774 378**
Oxi 3205 Set 1	case set including DO sensor CellOx 325 and accessories	1	**9.774 340**
Oxi 3205 Set 2	case set including DO sensor CellOx 325 (3m) and accessories	1	**9.774 406**
Oxi 3205 Set 3	case set including DO sensor DurOx 325 (3m) and accessories	1	**9.774 343**

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E & OE.

1 Portable dissolved oxygen meter Oxi 3210

WTW

Convenient and versatile dissolved oxygen meter. Menu controlled, with backlit, graphics display. Memory, including GLP supporting functions, temperature compensation, barometric pressure and salinity. Powered by standard alkaline, or rechargeable, batteries.

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Measuring ranges:

O_2 concentration:	0.00 to 19.99mg/l (19.9mg/l*)
	0.0 to 90.0mg/l (90mg/l*)
O_2 saturation:	0.0 to 199.9% (199%*)
	0 to 600%
Partial pressure:	0.0 to 199.9mbar (199 mbar*)
	0 to 1250mbar
Temperature:	-5.0 to +105°C, ±0.1°C
	* when using DurOx oxygen sensor probes

Accuracy:

O_2 concentration:	±0.5% of reading
O_2 saturation:	±0.5% of reading
Partial pressure:	±0.5% of reading
Datalogger:	200 records (Reading, Temperature, Date, Time, ID)

Type	Description	PK	Cat. No.
Oxi 3210	meter only	1	**9.774 350**
Oxi 3210 Set 1	cased set including DO sensor CellOx 325 and accessories	1	**9.774 351**
Oxi 3210 Set 2	cased set including DO sensor CellOx 325 (3m) and accessories	1	**9.774 407**
Oxi 3210 Set 3	cased set including DO sensor DurOx 325 (3m) and accessories	1	**9.774 357**

2 3 Portable dissolved oxygen meter Oxi 3310

WTW

Comfortable and versatile DO meter with integral, time controlled, data logger and memory for 5000 GLP compliant records for extended data collection. Menu controlled, with backlit graphics display for comfortable and safe operation. Calibration against external standards possible. Automatic temperature, barometric pressure and salinity compensation. 100% waterproof, USB interface for fast data transfer. Includes driver software and cable.

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Measuring ranges:

O_2 concentration:	0.00 to 19.99mg/l (19.9mg/l*)
	0.0 to 90.0mg/l (90mg/l*)
O_2 saturation:	0.0 to 199.9% (199%*)
	0 to 600%
Temperature:	-5.0 to +50.0°C
	* when using DurOx oxygen sensor probes

Accuracy:

O_2 concentration:	±0.5% of reading
O_2 saturation:	±0.5% of reading
Memory:	5000 records (measured value, temperature, date, time, ID)

Type	Description	PK	Cat. No.
Oxi 3310	meter only	1	**9.774 338**
Oxi 3310 Set 1	cased set including DO sensor CellOx 325 and accessories	1	**9.774 339**
Oxi 3310 Set 2	cased set including DO sensor CellOx 325 (3m) and accessories	1	**9.774 408**

1

1 Dissolved oxygen meter AL20Oxi

The new, microprocessor-controlled, AL20 hand-held meter range meets the day-to-day requirement for sturdy and reliable systems for pH or redox, conductivity/TDS, temperature and dissolved oxygen measurement.
The water-tight housing complies with IP67 and is fitted with protective armouring to ensure reliable operation even in extreme ambient conditions. The support can be flipped up to hang the meter on pipes or branches.

- battery operation period up to 12.000 hours (4 x 1.5V Type AA batteries)
- auto Hold function
- internal memory for 20 data sets
- self-polarising oxygen electrode with integral NTC sensor

Specifications:

O_2 partial pressure:	0.0 to 570.0hPa, 0.0 to 427.4mmHg, or 0 to 1200hPa, 0 to 900mmHg
O_2 concentration:	0.00 to 25.00mg/l or 0.0 to 70.0mg/l
O_2 saturation:	0.0 to 250.0% or 0 to 600%
Accuracy:	±1.5 ±0.2mg/l (0 to 25mg/l) or ±2.5 ±0.3mg/l (25 to 70mg/l) ±1 digit
Temperature:	-5.0 to +50.0°C 23.0 to 122.0°F
Accuracy:	±0.1°C
Abs. air pressure:	500 to 1100hPa
Accuracy:	±0.5% full scale
Nominal temperature:	25°C
Operating temperature:	0 to 50°C
Storage temperature:	-20 to 70°C
Power consumption:	max. 0.25mA
Auto-Off Function:	0 to 120min

Type	Description	PK	Cat. No.
AL20Oxi Set	complete in carrying case	1	**9.699 245**

Accessories for Dissolved-Oxygen-Meter AL20Oxi

AQUALYTIC

Type	PK	Cat. No.
Oxygen electrode, 1.5m cable	1	**9.699 248**
Oxygen electrode, 10m cable	1	**9.699 249**
Oxygen electrode, 30m cable	1	**9.699 250**
Service Set for Oxygen electrode with 3 Membrane Heads, 100ml KOH solution	1	**9.699 251**

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2 Portable/bench dissolved oxygen meters, ProfiLine Oxi 1970i

WTW

With robust and impact resistant housing. Splashproof (IP66) and submersible (IP67).
Cable lengths up to 100 metres are available on request for oxygen measurement at depth. With rechargeable battery giving up to 600 hours of operating time, shoulder strap, hinged carrying handle which also acts as a stand, and electrode case. User friendly, multi-function display, auto test, non-volatile data memory for 50 pairs of readings and RS232 output interface.

ProfiLine Oxi 1970i:
Unbreakable oxygen meter with rechargeable battery and network operation, data storage, GLP test functions, OxiCal® rapid calibration, automatic air pressure correction by integral barometeric pressure sensor (500 to 1100 hPa), automatic temperature compensation via IMT compensation procedure, automatic salinity correction of 0.0 to 70.0 (adjustable via display), AutoRead for better reproducibility ±0.05mg/l.

Accessories required for oxygen measurement at depth can be obtained upon request.

Measuring range:

O_2 concentration:	0.00 to 19.99mg/l 0.0 to 90.0mg/l
O_2 saturation:	0.0 to 199.9% 0 to 600%
Temperature:	-5.0 to +50.0°C
Accuracy:	
O_2 concentration:	±0.5% of reading
O_2 saturation:	±0.5% of reading
Temperature:	±0.1K

Type	PK	Cat. No.
ProfiLine Oxi 1970i	1	**9.822 592**

E & OE.

The new inoLab® series from WTW

The new inoLab® benchtops are perfectly designed for modern laboratory surroundings. *WTW*
The key pads are clearly outlined and easy-to-operate, their smooth surfaces are easy-to-clean and the operation is self-explanatory.
Depending on the type, they have a seven segment display or a backlit black and white graphical display, as well as a USB interface. All meters include a universal power supply and a convenient stand with sensor support.
If desired they can be ordered in application oriented sets including sensors and accessories.

1 Oxygen meter inoLab® Oxi 7310

NEW!

WTW

Reliable Documentation for dissolved oxygen measurement, if desired also available with built-in printer. This is the inoLab® Oxi 7310 or inoLab® Oxi 7310P. A modern backlit graphic display with menu controlled user interface allows easy and intuitive operation. The mini USB-B interface provides fast data transfer to a PC. The internal memory can record up to 5000 GLP complying data including ID, date and time. The housing and the keypad are easy-to-clean. The inoLab® Oxi 7310 supports the long proven WTW galvanic sensors, CellOx® 325 and StirrOx® G. A calibration history of the 10 last calibrations allows conclusions on the state of the sensor. Calibrations versus external standards e.g. Winkler titration, are possible, too. The meter includes automatic barometric pressure and temperature compensation. An integrated thermal printer (58 mm width) is ready for printout of the measured data (option). The scope of delivery includes meter, stand, power supply and USB cable.

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Specifications

Ranges:	All values±1 digit
Dissolved oxygen concentration:	0.00 … 19.99 mg/l ±0.5 % Mw. 0 … 90 mg/L ±0.5 %
Saturation:	0.0 …199.9 % ±0.5 % v. Mw. 0 … 600 % ±0.5 v Mw.
Partial pressure:	0 … 199.9 hPa, 0 …1250 hPa
Temperature:	-5.0 … 105.0°C ±0.1°C
Calibration:	1-point air calibration (water vapour saturated air) or versus external standard
Calibration memory:	Up to 10 calibrations recallable
Display:	Backlit graphic LCD
Memory:	manual 200/5000 automatic
Logger:	manual/time controlled
Interface	Mini USB-B
Power supply	Universal power supply, 100 to 240 V, 50/60 Hz, 4 x 1.5 V AA or 4 x 1.2 V NiMH

Type	Description	PK	Cat. No.
Oxi 7310	Meter only including accessories	1	**9.920 108**
Oxi 7310 Set 1	Meter including CellOx® 325 and accessories	1	**9.920 109**
Oxi 7310 Set 4	Meter including StirrOx® G and accessories	1	**9.920 110**
Oxi 7310P	Meter including integrated printer	1	**9.920 111**
Oxi 7310P Set 1	Meter including integrated printer, incl. CellOx® 325 and accessories	1	**9.920 112**
Oxi 7310P Set 4	Meter including integrated printer, incl. StirrOx® G and accessories	1	**9.920 113**

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1 Accessories for Oxygen meters

StirrOx® G: *WTW*

For inoLab® Oxi 730, ProfiLine 197i/1970i, inoLab® 740 Oxi, inolab Oxi 7310
Self-stirring oxygen sensor.
- single-handed use
- high reproducibility
- ready for immediate use, no polarisation period necessary
- extremely low internal consumption of oxygen by the electrode
- no zero point calibration necessary
- OxiCal®-SL calibration and storage vessel included
- 6 months operation with one electrolyte filling
- IMT function compensation
- membrane leakage monitoring, damaged membranes are indicated.

Supplied with case, spare parts and maintenance solutions.

CellOx® 325:
For Oxi 3xx, Oxi 3xxi, ProfiLine Oxi 197, ProfiLine Oxi 197i, ProfiLine Multi 197i, Multi 340i, Oxi 3205, Oxi 3210, Oxi 3310, ProfiLine Oxi 1970i, ProfiLIne Multi 1970i, inoLab®
Membrane-covered, galvanic oxygen sensor.
- ready for immediate use, no polarisation period necessary
- IMT function compensation
- 6 months operation with one electrolyte filling
- stable zero point
- 1.5 metre cable and waterproof plug (to IP 67) (other cable lengths available on request)
- OxiCal®-SL calibration and storage vessel included

Type	PK	Cat. No.
StirrOx® G	1	**9.822 560**
CellOx® 325	1	**9.822 551**

BOD (Karlsruher) bottles - please see page 1138.

2

2 Oxygen sensor DurOx® 325

For use with Oxi 3xxi, ProfiLine Oxi 197i, ProfiLine 3205, 3210, 3310. *WTW*
Membrane-covered oxygen sensor with low flow requirement and removable cage guard, for field applications (fish farm revival pools) and for educational purposes.

- ready to measure - no polarisation time
- IMT compensation via two integral temperature sensors
- service life with one electrolyte filling approx. 6 months
- minimal flow requirement
- no zero current
- sensor is watertight (IP 68 - 2)
- standard with 3m cable and watertight plug
- standard with calibration/storage vessel OxiCal® -D
- standard with cage guard SK-D

Type	PK	Cat. No.
DurOx® 325	1	**9.920 045**

E & OE.

1 Hanging Scale CH

NEW!

Kern & Sohn GmbH

Convenient for hanging loads suitable for case.
- Multi data hold function
- Tape measure, extractable, length 100cm
- Battery operation (9V incl.)

Type	Capacity	Readability	Weight	PK	Cat. No.
	g	g	g		
CH 15K20	15	20	250	1	**6.089 410**
CH 50K50	50	50	250	1	**6.203 451**
CH 50K100	50	100	250	1	**6.300 325**

2 Pocket electronic balances, CM series

Kern & Sohn GmbH

This wallet-sized balance is well protected by it's hinged cover against all kinds of impacts, pressure and dust and fits neatly into a jacket pocket. With integrated 'Weigh-in' function for mixture preparation and 'Cal' adjustment programme for precise calibration. Supplied with batteries.

Dimensions (WxDxH): 85 x 130 x 25mm
Weight: 175g

Type	Readability	Capacity	Pan dim.	PK	Cat. No.
	g	g	mm		
CM 60-2N	0.01	60	80 x 70	1	**9.901 366**
CM 150-1N	0.1	150	80 x 70	1	**9.901 364**
CM 320-1N	0.1	320	80 x 70	1	**9.901 365**
CM 1K1N	1.0	1000	80 x 70	1	**9.901 362**

3 Pocket Balances Type JE

Ohaus

Simple, compact and handy. WxDxH: 13.6 x 8.3 x 2.0cm. Ideal for precise weighing in the field.
- automatic calibration, using external weight.
- large, high-contrast, liquid crystal display with back light.
- robust plastic housing.
- auto-off function prolongs battery life.
- includes protective cover and batteries.

Type	Readability	Capacity	Pan dim.	PK	Cat. No.
	g	g	mm		
JE120	0.1	120	83 x 76	1	**9.902 413**
JE250	0.1	250	83 x 76	1	**9.902 414**
JE500	0.1	500	83 x 76	1	**9.902 415**

4 Portable electronic balances, CS series

Ohaus

- Compact and practical with choice of weighing ranges from 200g to 5000g
- Sleek, low-profile housing
- Stainless steel weighing pan
- Large, 11mm high digital display
- Energy-saving, automatic switch-off
- Robust plastic construction
- Battery or mains operation

Supplied with 3 x 1.5V AAA batteries and mains adapter.

Dimensions WxDxH: 135 x 193 x 39mm
Accessories: 1050ml plastic container

Type	Readability	Capacity	Weighing pan	PK	Cat. No.
	g	g	mm		
CS200	0.1	200	146 x 133	1	**9.950 222**
CS2000	1.0	2000	146 x 133	1	**9.950 223**
CS5000	1.0	5000	146 x 133	1	**9.950 224**

Accessories for Portable electronic balances, CS series

Ohaus

Description	PK	Cat. No.
Plastic container, 1050ml	1	**9.947 300**
Mains adapter	1	**9.947 301**
Stainless steel weighing pan cover	1	**9.947 302**

1 2 Portable Balances, Scout Pro series

Ohaus

The Scout Pro offers simple operation and higher resolution to accommodate more applications than ever before:
- high contrast, LCD display.
- parts counting, percentage weighing, check weighing, totalisation, weigh-below facility, display-hold-function
- simple, two-button operation
- density determination kit for automatic specific gravity calculations (optional accessory)
- optional USB or RS232 interface accessories (cable included)
- battery or a.c. operation (a.c. adapter included)
- 1 mg readability model supplied with draught shield
- programmable, energy saving, auto switch-off
- below-balance weighing (weighing hook included)

Type	Readability g	Capacity g	Pan dim. mm	PK	Cat. No.
SPU123	0.001	120	90 dia.	1	**9.902 420**
SPU202	0.01	200	120 dia.	1	**9.902 421**
SPU402	0.01	400	120 dia.	1	**9.902 422**
SPU401	0.1	400	120 dia.	1	**9.902 423**
SPU602	0,01	600	120 dia.	1	**9.902 428**
SPU601	0.1	600	165 x 142	1	**9.902 424**
SPU2001	0.1	2000	165 x 142	1	**9.902 425**
SPU4001	0.1	4000	165 x 142	1	**9.902 426**
SPU6000	1	6000	165 x 142	1	**9.902 427**
SPU6001	0,1	6000	165 x 142	1	**9.902 429**

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3 Precision balance, Adventurer™ Pro series

Ohaus

Ideal for standard weighing tasks in laboratory, industrial and educational routines.
- easy to use and with a robust housing.
- simple 4-button-operation
- backlit, twin-line display with text guidance and weight displays
- parts counting, percentage weighing, below-balance weighing, totalisation, animal weighing, checkweighing facilities, gross/net/tare-function,
- display-hold function
- GLP/GMP protocol with date/time
- RS232 interface
- protective working cover for the display
- electronic filter
- full glass draught shield for the 1mg model
- battery or mains supply with automatic switch-off.
- also available as approved model.

Type	Readability g	Capacity g	Pan dim. mm	Description	PK	Cat. No.
AV212	0.01	210	dia. 120	external calibration	1	**9.947 651**
AV412	0.01	410	149 x 162	external calibration	1	**9.947 652**
AV812	0.01	810	149 x 162	external calibration	1	**9.947 653**
AV2101	0.1	2100	149 x 162	external calibration	1	**9.947 654**
AV4101	0.1	4100	149 x 162	external calibration	1	**9.947 655**
AV8101	0.1	8100	149 x 162	external calibration	1	**9.947 656**

1 Precision Balances Pioneer™

Ohaus

- weighing (18 units + 1 custom unit), parts counting, percentage weighing
- LCD readout
- mains power
- RS232 for sending balance ID and weight
- solid, diecast, metal housing, stainless steel pan
- fixed, integral, weigh-below hook, all-glass draught shield with 3 sliding doors, front levelling bubble, menu and calibration locks

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Type	Readability	Capacity g	Plate dia. mm	Description	PK	Cat. No.
PA213	1mg	210	120	external calibration	1	**9.902 130**
PA213C	1mg	210	120	internal calibration	1	**9.902 131**
PA213CM	1mg	210	120	internal calibration	1	**9.902 132**
PA413	1mg	410	120	external calibration	1	**9.902 133**
PA413C	1mg	410	120	internal calibration	1	**9.902 134**
PA413CM	1mg	410	120	internal calibration	1	**9.902 135**
PA512	0.01g	510	180	external calibration	1	**9.902 136**
PA512C	0.01g	510	180	internal calibration	1	**9.902 137**
PA512CM	0.01g	510	180	internal calibration	1	**9.902 138**
PA2102	0.01g	2100	180	external calibration	1	**9.902 139**
PA2102C	0.01g	2100	180	internal calibration	1	**6.234 850**
PA2102CM	0.01g	2100	180	internal calibration	1	**9.902 141**
PA4102	0.01g	4100	180	external calibration	1	**9.902 142**
PA4102C	0.01g	4100	180	internal calibration	1	**9.902 143**
PA4102CM	0.01g	4100	180	internal calibration	1	**9.902 144**
PA4101	0.1g	4100	180	external calibration	1	**9.902 145**
PA4101C	0.1g	4100	180	internal calibration	1	**9.902 146**
PA4101CM	0.1g	4100	180	internal calibration	1	**9.902 147**

2 Compact balances Type EMB

Kern & Sohn GmbH

Economically priced, battery-operated models. Large LCD readout with 16mm high digits. "Weigh-in" function simplifies mixing. Supplied with 4 x 1.5V AA batteries. With d.c. power connection socket (accessory mains adapter available at extra cost).
Auto-off function activates after 3 minutes without use for saving battery power.

Dimensions WxDxH: 170 x 240 x 38mm
Net weight: approx. 600g

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Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.
EMB 100-3	0.001	100	0.001	0.003	82 dia.	1	**6.238 426**
EMB 200-2	0.01	200	0.01	0.02	82 dia.	1	**9.901 320**
EMB 600-2	0.01	600	0.01	0.03	82 dia.	1	**9.901 321**
EMB 1000-2	0.01	1000	0.01	0.03	150 dia.	1	**6.235 728**
EMB 500-1	0.1	500	0.1	0.2	105 dia.	1	**9.901 322**
EMB 1200-1	0.1	1200	0.1	0.3	105 dia.	1	**9.901 323**
EMB 5.2K1	1.0	5200	1.0	3.0	105 dia.	1	**9.901 324**
EMB 2200-0	1.0	2200	1.0	2.0	105 dia.	1	**9.901 371**
EMB 5.2 K 5	5.0	5200	5.0	10.0	105 dia.	1	**9.901 372**

Balances, electronic, compact, 440 series

With features including formulation, piece counting programmes and high accuracy these balances are ideal for routine laboratory tasks. Calibration adjustment programme maintains accuracy. Can be battery operated (9V PP3, not supplied). With stainless steel balance platform, except 440-21A. Supplied with working cover and mains adapter requiring a 230V 50/60Hz supply.

Kern & Sohn GmbH

Overall (WxDxH): 165 x 230 x 80mm
Weight: approx. 1kg

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.	
440-21A	0.001	60	0.001	0.003	81 dia.	1	**9.901 340**	
440-33N	0.01	200	0.01	0.02	105 dia.	1	**9.901 348**	1
440-35N	0.01	400	0.01	0.03	105 dia.	1	**9.901 349**	
440-35A	0.01	600	0.01	0.03	105 dia.	1	**9.901 341**	
440-43N	0.1	400	0.1	0.2	130 x 130	1	**9.901 344**	
440-45N	0.1	1000	0.1	0.2	130 x 130	1	**9.901 346**	2
440-47N	0.1	2000	0.1	0.2	130 x 130	1	**9.901 347**	
440-49N	0.1	4000	0.1	0.3	170 x 150	1	**9.901 343**	3
440-49A	0.1	6000	0.1	0.3	170 x 150	1	**9.901 342**	
440-51N	1.0	4000	1.0	2.0	170 x 150	1	**9.901 345**	
440-53N	1.0	6000	1.0	2.0	170 x 150	1	**9.901 350**	

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9.901 348

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9.901 346

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9.901 343

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4 Balances, electronic, precision, 572 series

Weighing speed adjustable in two stages. Unit transfer to bullion and non-metric units of weight. With calibration adjustment programme. With net/total weighing. Piece counting: 1, 5, 10 or 20 reference pieces. Percentage weighing. Bi-directional RS232C data output supplied. Ultra low-profile, metal casing (WxDxH): 150 x 310 x 60mm. Supplied with mains adapter for 230V 50/60Hz. Balances can be alternatively operated by accessory batteries.
Also available with DKD certified calibration weight, thermal printer, statistic printer, rechargeable battery pack or label printer at additional cost.

Kern & Sohn GmbH

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.
572-31*	0.001	301	0.001	0.003	105 dia.	1	**9.900 990**
572-32*	0.001	421	0.001	0.003	105 dia.	1	**6.229 315**
572-33	0.01	1610	0.01	0.03	150 dia.	1	**9.901 333**
572-35	0.01	2410	0.01	0.03	150 dia.	1	**9.901 335**
572-37	0.01	3010	0,01	0.03	160 x 200	1	**6.227 789**
572-45	0.1	12100	0.1	0.15	160 x 200	1	**9.900 991**
572-49	0.1	16100	0.1	0.3	160 x 200	1	**9.901 336**
572-57	0.1	24100	0.1	0.3	160 x 200	1	**9.901 354**

*with removable draught shield

Precision balance KB

Convenience model at an economical price — *Kern & Sohn GmbH*

- for applications that require verification, please order verification at the same time, verification at a later date is not possible.
- user guidance step by step in the display
- freely programmable weighing units, e.g. display directly in special units such as the length of thread g/m, paper weight g/m², or similar
- precise counting. The automatic reference optimization gradually improves the average value of the piece weighing
- numerical tare deduction for container weighing. Useful when checking loads
- ring-shaped draft shield standard, 90 x 40mm dia. x ht. for models with readability d = 0.001g

also available with DKD certified calibration weight, thermal printer, statistics printer, or label printer at additional cost.

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.	
KB 120-3N	0.001	121	0.001	0.003	80 dia.	1	**6.234 511**	
KB 200-3N	0.001	201	0.001	0.003	80 dia.	1	**9.901 401**	1
KB 240-3N	0.001	241	0.001	0.003	80 dia.	1	**6.235 214**	
KB 360-3N	0.001	361	0.001	0.003	80 dia.	1	**9.901 402**	
KB 1200-2N	0.01	1210	0.01	0.03	130 x 130	1	**6.233 613**	
KB 2000-2N	0.01	2010	0.01	0.03	130 x 130	1	**6.231 607**	
KB 2400-2N	0.01	2410	0.01	0.03	130 x 130	1	**9.901 403**	2
KB 3600-2N	0.01	3610	0.01	0.03	130 x 130	1	**9.901 404**	
KB 10K0.05N	0.05	10100	0.05	0.15	150 x 170	1	**9.901 405**	
KB 10000-1N	0.1	10100	0.1	0.3	150 x 170	1	**9.901 406**	
KB 650-2NM	0.01	650	0.01	0.03	130 x 130	1	**9.901 407**	
KB 2000-2NM	0.01	2000	0.01	0.03	130 x 130	1	**9.901 408**	
KB 6500-1NM	0.1	6500	0.1	0.3	150 x 170	1	**9.901 409**	
KB 10000-1NM	0.1	10000	0.1	0.3	150 x 170	1	**9.901 410**	3

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9.901 401

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9.901 403

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9.901 410

4 5 Precision balance PLE

Low-cost precision balance with wide range of functions — *Kern & Sohn GmbH*

- weighing sum memory adds single weighing results
- weighing with tolerance range (Checkweighing)
- percentage determination: makes it possible to store a given weight value (100%) and to determine deviations from this target value.
- ring-shaped, glass draught shield as standard on all models with readability d = 0.001g]. Removable metal cover with pipette opening. Weighing space 150 x 50mm dia. x ht.
- integral rechargeable battery pack. Operating time approx. 35 hours, charging time approx. 10 hours

also available with DKD certified calibration weight, thermal printer, statistics printer, or label printer at additional cost.

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Plate dia. mm	PK	Cat. No.
PLE 310-3N	0.001	310	0.001	0.002	80	1	**9.901 325**
PLE 3100-2N	0.01	3100	0.01	0.02	135	1	**9.901 326**

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1 Precision balances type EW-N and EG-N

Kern & Sohn GmbH

High quality laboratory balances, housed in a robust and stable metal casing. With bar graph capacity display which shows the current available weighing range remaining.
Fitted with protective working cover for casing and keyboard. Suitable for EC verification (factory option at additional cost - details on request). Convenient, internal automatic calibration (only type EG-N) as well as extensive configuration and a menu of applications. Draught shield supplied with all 0.001g readability models. Additionally supplied with parts counting facility, percentage weighing function, flush-mounted platform.

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.
EW220-3NM	0.001	220	0.001	0.002	118 dia.	1	**9.901 007**
EW420-3NM	0.001	420	0.001	0.003	118 dia.	1	**9.901 008**
EW620-3NM	0.001	620	0.001	0.003	118 dia.	1	**9.901 009**
EW820-2NM	0.01	820	0.01	0.01	170 x 142	1	**9.901 010**
EW2200-2NM*	0.01	2200	0.01	0.01	180 x 160*	1	**9.901 011**
EW4200-2NM*	0.01	4200	0.01	0.02	180 x 160*	1	**9.901 012**
EW6200-2NM*	0.01	6200	0.01	0.03	180 x 160*	1	**9.901 013**
EW12000-1NM*	0.1	12000	0.1	0.2	180 x 160*	1	**9.901 014**
EG220-3NM	0.001	220	0.001	0.002	118 dia.	1	**9.901 018**
EG420-3NM	0.001	420	0.001	0.003	118 dia.	1	**9.901 019**
EG620-3NM	0.001	620	0.001	0.004	118 dia.	1	**9.901 015**
EG2200-2NM*	0.01	2200	0.01	0.01	180 x 160*	1	**9.901 016**
EG4200-2NM*	0.01	4200	0.01	0.02	180 x 160*	1	**9.901 017**

* Overall dimensions WxDxH (without glass draught shield): 192 x 265 x 87mm

2 3 Precision balance Type PLS

Kern & Sohn GmbH

- ergonomically optimised keypad for left and right-handed users
- ring-shaped glass draught shield standard for all models with 0.001g resolution.
  Removable metal cover with pipette opening. Weighing space 150mm dia., height 60mm
- count/weight switchover at the press of a button
- precise counting. The automatic optimisation of reference weight gradually improves the average value of the piece weight. The automatic optimisation of reference weight gradually improves the average value of the piece weight
- weighing with tolerance range Input of an upper/lower limit value. A visual signal assists with portion division, dispensing or grading
- percentage determination makes it possible to store a given weight value (100%) and to determine deviations from this target value in %
- density determination of liquids and solids with immediate display of the density on the display
- pre-Tare function for manual deduction of a known container weight. Useful for checking fill-levels

Type	Readability g	Weighing range g	Reproducibility ± g	Linearity ± g	Plate dia. mm	PK	Cat. No.
PLS 310-3F	0.001	310	0.002	0.003	110	1	**9.901 411**
PLS 510-3A	0.001	510	0.001	0.002	110	1	**9.901 412**
PLS 720-3A	0.001	720	0.001	0.002	110	1	**9.901 413**
PLS 1200-3A	0.001	1200	0.001	0.002	110	1	**9.901 414**
PLS 1200-3DA	0.001/0.01	720/1200	0.001/0.01	0.002/0.02	110	1	**9.901 415**
PLS 3100-2F	0.01	3100	0.01	0.03	160	1	**9.901 416**
PLS 4200-2A	0.01	4200	0.01	0.02	160	1	**9.901 417**
PLS 6200-2A	0.01	6200	0.01	0.02	160	1	**9.901 418**
PLS 6200-2DA	0.01/0.1	4200/6200	0.01/0.1	0.02/0.2	160	1	**9.901 419**

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E & OE.

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7.619 757

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7.635 868

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6.228 513

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6.231 685

Precision balance Type PCB

NEW!

Kern & Sohn GmbH

Compact scale for your laboratory. Due to the Recipe and piece counting function, as well as the grand precision this scale is perfect for the daily use in the Laboratory.
- Protective working cover over keyboard and housing is enclosed o standard.
- Modern, baacklit LCD display, digit height 15 mm
- Optional battery operation, 9V Block, not included.
- AUTO-OFF funktion to preserve the battery, can be switched off
- Stainless steel weighing plate

Overall (WxDxH): 163 x 245 x 79mm
Weight: approx. 1kg

Type	Readability g	Capacity g	Reproducibility ± g	Linearity ± g	Pan dim. mm	PK	Cat. No.	
PCB 100-3	0.001	100	0.001	0.003	81 dia.	1	**7.619 757**	1
PCB 250-3	0.001	200	0.001	0.003	81 dia.	1	**6.238 044**	
PCB 200-2	0.01	200	0.01	0.02	105 dia.	1	**7.635 868**	2
PCB 1000-2	0.01	1000	0.01	0.03	130 x 130	1	**6.228 513**	3
PCB 1000-1	0.1	1000	0.1	0.2	130 x 130	1	**6.235 098**	
PCB 2000-1	0.1	2000	0.1	0.2	130 x 130	1	**6.229 399**	
PCB 6000-1	0.1	6000	0.1	0.3	150 x 170	1	**6.231 685**	4
PCB 6000-0	1	6000	1	2	150 x 170	1	**9.901 300**	

5 6 Analytical balance Pioneer™

Ohaus

- weighing (18 units + 1 custom unit), parts counting, percentage weighing
- LCD readout
- mains power
- RS232 for outputting balance ID and weight
- solid, diecast, metal housing, stainless steel pan
- fixed, integral, weigh-below hook, all-glass draught shield with 3 sliding doors, front levelling bubble, menu and calibration locks
- type-approved versions also available

5

6

Type	Readability mg	Weighing range g	Plate dia. mm	PK	Cat. No.
PA64	0.1	65	90	1	**6.234 827**
PA64C	0.1	65	90	1	**9.902 151**
PA64CM	0.1	65	90	1	**9.902 152**
PA114	0.1	110	90	1	**6.233 682**
PA114C	0.1	110	90	1	**9.902 154**
PA114CM	0.1	110	90	1	**9.902 155**
PA214	0.1	210	90	1	**9.902 156**
PA214C	0.1	210	90	1	**6.233 795**
PA214CM	0.1	210	90	1	**9.902 158**

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1 Analytical balances, Discovery

Ohaus

Premium performance and precision. With internal, motorised calibration, GLP-software and 11 essential analytical software applications, each Analytical Plus balance provides a perfect combination of user-friendly operation and supreme performance.
- GLP-software
- statistics for up to 255 samples
- density and volume determination
- internal autocalibration with two internal weights
- digital temperature compensation
- menu and calibration assurance
- analogue weighing range indication
- bi-directional RS232 interface
- type-approved versions also available.

Type	Readability mg	Weighing range g	Plate dia. mm	PK	Cat. No.
DV114C	0.1	110	90	1	**9.902 160**
DV 114CM**	0.1	110	90	1	**9.902 161**
DV214C	0.1	210	90	1	**6.232 314**
DV 214CM**	0.1	210	90	1	**6.233 833**
DV 314C	0.1	310	90	1	**9.902 164**
DV 314CM**	0.1	310	90	1	**9.902 165**
DV 215CD*	0.01/0.1	81/210	90	1	**6.229 783**
DV 215CDM* **	0.01/0.1	81/210	90	1	**6.227 197**

* Autoranging
**calibrated ex factory

2

2 Analytical balances type ABS and ABJ

Kern & Sohn GmbH

High performance, low cost analytical balances with a robust and stable metal housing and bar graph capacity display which shows the current available weighing range remaining. User-programmable, 4-figure balance ID number, LCD readout with 14mm high digits and 80mm diameter weighing pan. For 230V 50/60 Hz supplies.
Also available with DKD certified, calibration weight, ionizer, thermal printer, statistic printer, rechargeable battery pack or label printer at additional cost.

Analytical balance ABJ series:
Generally as type ABS, but additionally features automatic internal calibration (except ABJ 320-4) and g to ct conversion function.

Housing (WxDxH):	225 x 315 x 330mm
Weighing chamber:	190 x 155 x 200mm
Net weight:	approx. 7kg

Type	Readability mg	Capacity g	Reproducibility ± mg	Linearity ± mg	Plate dia. mm	PK	Cat. No.
ABS 80-4	0,1	83	0,1	0,2	80	1	**9.901 389**
ABS 120-4	0.1	120	0.1	0.2	80	1	**9.901 385**
ABS 220-4	0.1	220	0.1	0.2	80	1	**9.901 386**
ABJ 80-4M	0.1	83	0.1	0.2	80	1	**9.901 390**
ABJ 120-4M	0.1	120	0.1	0.2	80	1	**9.901 391**
ABJ 220-4M	0.1	220	0.1	0.2	80	1	**9.901 392**
ABJ 320-4	0,1	320	0,1	0.2	80	1	**9.901 421**

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

KERN WAAGEN · GEWICHTE · BALANCES · WEIGHTS

E & OE.

1 Balances, electronic, analytical, AES/AEJ series

1

Kern & Sohn GmbH

High performance, low cost analytical balances with compact housing, bar graph capacity display which shows the current available weighing range and user-programmable LCD readout with 17mm high digits. Also incorporates automatic internal calibration. For 230V 50/60 Hz supplies. Available with DKD certified calibration weight at additional cost. external calibration available. Languages: D, UK, FR, ES, IT, PL.

Analytical balance AEJ series:
Generally as type AES, but additionally features automatic internal calibration.

Type	Readability	Weighing range	Reproducibility	Linearity	Plate dia.	PK	Cat. No.
	mg	g	± mg	± g	mm		
AES 120-4	0.1	120	0.1	0.3	80	1	**9.900 950**
AES 220-4	0.1	220	0.1	0.3	80	1	**9.900 951**
AEJ 120-4M	0.1	120	0.1	0.3	80	1	**9.900 952**
AEJ 220-4M	0.1	220	0.1	0.3	80	1	**9.900 953**

2 Balances, electronic, analytical, ABT series

2

Kern & Sohn GmbH

Analytical and semi-microbalances which are suitable for verification.
All models have automatic calibration adjustment function by internal, motor-driven, calibration weight. It is possible to log ISO/GLP-compliant weighing or calibration data at any time via an accessory printer (not supplied) or data interface (bi-directional RS232-C).
Additionally, the balances have formulation, piece counting and percentage determination functions, as well as a flush-mounted weighing platform. All models are supplied with a modern, all-glass draught shield with sliding doors to the left, right and top.
Also available with DKD certified, calibration weight, ionizer, thermal printer, statistic printer, recchargeable battery pack or label printer at additional cost.

Weighing pan, stainless steel:	80mm dia.
Weighing chamber (WxDxH):	168 x 172 x 223mm
Dimensions (WxDxH):	217 x 356 x 338mm
Mains adapter:	220V

Type	Readability	Weighing range	Reproducibility	Linearity	Plate dia.	PK	Cat. No.
	mg	g	± mg	± g	mm		
ABT 120-4 M	0.1	120	0.1	0.2	80	1	**9.900 955**
ABT 220-4 M	0.1	220	0.1	0.2	80	1	**9.900 956**
ABT 320-4 M	0.1	320	0.1	0.2	80	1	**9.900 957**
ABT 120-5 DM	0.01 / 0.1	42 / 120	0.02 / 0.1	0.03 / 0.2	80	1	**9.900 958**
ABT 220-5 DM	0.01 / 0.1	82 / 220	0.05 / 0.1	0.1 / 0.2	80	1	**9.900 959**

3 Halogen moisture balance MB-35

3

Ohaus

The basic model MB35 offers fast, halogen heating and powerful software for simple operation. Temperature range: 50° to 160°C. Standard tasks can be achieved quickly, simply and with absolute reliability. Also, with its robust and stable housing, the MB-35 provides accurate and repeatable results where quality has to ensured, even in difficult conditions.
- Halogen-technology (up to 40% faster than infra-red)
- 35g capacity with 0.01%/0.001g readability
- Reproducibility 0.10% - 0.03%
- Temperature range: 50° to 160°C (5°C increments)
- Backlit graphics display
- 3 selectable automatic shut-off modes
- Menu-driven in 5 selectable languages
- RS232 Interface
- Compact and robust housing.

Type	Readability	Weighing range	Plate dia.	PK	Cat. No.
	g	g	mm		
MB 35	0.01% / 0.001	35	90	1	**9.947 500**

Sample dishes - please see page 321

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1 Moisture balance MB-45

Ohaus

- Halogen heating technology
- Menu navigation in 5 selectable languages
- Four, user defined, temperature profiles
- Large, back-lit graphics LCD readout
- Six selectable automatic shut-off modes
- Fifty, user-defined, drying programmes
- RS232 data interface
- Statistical function

Specifications

Weighing range:	45g
Readability:	0.01%/0.001g
Temperature range:	50 to 200°C (1°C stages)
Timer:	1.0 to 120 mins. (0.1 min. increments)
Measurement display:	% moisture, % dry substance, % ratio, gram or user defined
Shut-off modes:	Manual, time-controlled, Auto30, Auto60, Auto90, automatic can be freely selected
Temperature profile:	Standard, rapid, gentle, gradual
Memory:	50 named drying procedures
Weight calibration:	20g external calibration weight, optional
Dryer calibration.:	100°C and 160°C with optional temperature calibration set
Dimensions WxDxH:	190 x 350 x 150mm
Weight:	4.6kg
Accessories, optional:	Disposable sample dishes, reusable sample dishes, glass fibre filters, theft protection, protection cap, temperature calibration set, calibration weight, printer

Type	PK	Cat. No.
MB-45	1	**9.950 065**

Moisture balance MB-45, accessories

Ohaus

Description	PK	Cat. No.
Calibration weight 20g	1	**9.947 309**
Protective cover	2	**9.947 313**
Temperature calibration set	1	**9.947 314**
Theft protection clamp	1	**9.947 316**

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2 Halogen Moisture Analyser MLB 50-3N

Kern & Sohn GmbH

- 2 Halogen quartz glass heaters, each 400W
- 10 sample dishes included
- 3 displays for temperature, drying in %, drying time
- Application table. Various examples in the user manual
- CAL adjustment programme. External calibration weights are available at additional cost
- The last value measured remains on the display until it is replaced by a new measurement
- RS 232 interface

Optional accessories: aluminum sample plates , round fiber-glass filter, temperature calibration set, thermo-printer, etiquette-printer, DKD-calibration certificate for analyzer and optional test weight.

Specifications

Readability:	0.01%/0.001g
Weighing range, max:	50g
Reproducibility:	0.001g
Linearity:	±0.002g
Temperature range:	50 to 160°C

Type	PK	Cat. No.
MLB 50-3N	1	**9.901 400**

E & OE.

1 Halogen Moisture Analyzer MLS 65-3A

NEW!

Kern & Sohn GmbH

- Moisture Analyzer with 49 memory possibilities and graphic display
- The last value measured remains on the display until is it replaced by a new measurement
- Easy operation
- Display languages: German, English
- Serial RS 232 interface
- Compact and robust construction
- 10 sample plates included

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Specifications

Readability:	0.01%/0.001g
Weighing range, max:	65g
Reproducibility:	0.5 to 0.05%
Linearity:	±0.003g
Temperature range:	50 to 160°C
Plate dia.:	90mm
Dimensions (WxDxH):	250 x 360 x 175mm

Type	PK	Cat. No.
MLS 65-3A	1	**6.239 755**

OIML classes

Classes of Accuracy Nominal value	Classes of accuracy (Tolerance ±)						
	E1	E2	F1	F2	M1	M 2	M 3
1mg	± 0.003 mg	± 0.006 mg	± 0.020 mg	± 0.006 mg	± 0.20 mg		
2mg	± 0.003 mg	± 0.006 mg	± 0.020 mg	± 0.006 mg	± 0.20 mg		
5mg	± 0.003 mg	± 0.006 mg	± 0.020 mg	± 0.006 mg	± 0.20 mg		
10mg	± 0.003 mg	± 0.008 mg	± 0.025 mg	± 0.008 mg	± 0.25 mg		
20mg	± 0.003 mg	± 0.010 mg	± 0.03 mg	± 0.10 mg	± 0.3 mg		
50mg	± 0.004 mg	± 0.012 mg	± 0.04 mg	± 0.12 mg	± 0.4 mg		
100mg	± 0.005 mg	± 0.016 mg	± 0.05 mg	± 0.16 mg	± 0.5 mg	± 1.6 mg	
200mg	± 0.006 mg	± 0.020 mg	± 0.06 mg	± 0.20 mg	± 0.6 mg	± 2.0 mg	
500mg	± 0.008 mg	± 0.025 mg	± 0.08 mg	± 0.25 mg	± 0.8 mg	± 2.5 mg	
1g	± 0.010 mg	± 0.03 mg	± 0.10 mg	± 0.3 mg	± 1.0 mg	± 3.0 mg	± 10 mg
2g	± 0.012 mg	± 0.04 mg	± 0.12 mg	± 0.4 mg	± 1.2 mg	± 4.0 mg	± 12 mg
5g	± 0.016 mg	± 0.05 mg	± 0.16 mg	± 0.5 mg	± 1.6 mg	± 5.0 mg	± 16 mg
10g	± 0.020 mg	± 0.06 mg	± 0.20 mg	± 0.6 mg	± 2.0 mg	± 6.0 mg	± 20 mg
20g	± 0.025 mg	± 0.08 mg	± 0.25 mg	± 0.8 mg	± 2.5 mg	± 8.0 mg	± 25 mg
50g	± 0.03 mg	± 0.10 mg	± 0.3 mg	± 1.0 mg	± 3.0 mg	± 10 mg	± 30 mg
100g	± 0.05 mg	± 0.16 mg	± 0.5 mg	± 1.6 mg	± 5.0 mg	± 16 mg	± 50 mg
200g	± 0.10 mg	± 0.3 mg	± 1.0 mg	± 3.0 mg	± 10 mg	± 30 mg	± 100 mg
500g	± 0.25 mg	± 0.8 mg	± 2.5 mg	± 8.0 mg	± 25 mg	± 80 mg	± 250 mg
1kg	± 0.5 mg	± 1.6 mg	± 5.0 mg	± 16 mg	± 50 mg	± 160 mg	± 500 mg
2kg	± 1.0 mg	± 3.0 mg	± 10 mg	± 30 mg	± 100 mg	± 300 mg	± 1000 mg
5kg	± 2.5 mg	± 8.0 mg	± 25 mg	± 80 mg	± 250 mg	± 800 mg	± 2500 mg
10kg	± 5.0 mg	± 16 mg	± 50 mg	± 160 mg	± 500 mg	± 1600 mg	± 5000 mg
20kg	± 10 mg	± 30 mg	± 100 mg	± 300 mg	± 1000 mg	± 3000 mg	± 10 g
50kg	± 25 mg	± 80 mg	± 250 mg	± 800 mg	± 2500 mg	± 8000 mg	± 25 g
100kg		± 160 mg	± 500 mg	± 1600 mg	± 5000 mg	± 16 g	± 50 g
200kg		± 300 mg	± 1000 mg	± 3000 mg	± 10 g	± 30 g	± 100 g
500kg		± 800 mg	± 2500 mg	± 8000 mg	± 25 g	± 80 g	± 250 g
1000kg		± 1600 mg	± 5000 mg	± 16 g	± 50 g	± 160 g	± 500 g
2000kg			± 10 g	± 30 g	± 100 g	± 300 g	± 1000 g
5000kg			± 25 g	± 80 g	± 250 g	± 800 g	± 2500 g

2 Calibration weights, class M1

Brass, finely turned (also available in stainless steel). Plastic box with internal foam support available on request. Also available with internationally recognised DKD calibration certification on request.

Kern & Sohn GmbH

2

Weight g	Accuracy ± mg	PK	Cat. No.
1	1.0	1	**9.900 501**
2	1.2	1	**9.900 502**
5	1.5	1	**9.900 505**
10	2.0	1	**9.900 510**
20	2.5	1	**9.900 512**
50	3.0	1	**9.900 515**
100	5.0	1	**9.900 520**
200	10	1	**9.900 522**
500	25	1	**9.900 525**
1000	50	1	**9.900 531**
2000	100	1	**9.900 532**
5000	250	1	**9.900 535**
10000	500	1	**9.900 540**

Also available: Single weights from 1mg - 2000 kg or complete weight sets from 1mg - 10kg in OIML-classes E1, E2, F1, F2, M1, M2, M3.

1

1 Calibration weights, class F1

Nickel plated brass (also available in stainless steel). *Kern & Sohn GmbH*
Plastic box with internal foam support available on request. Also available with internationally recognised DKD calibration certification on request.

Weight g	Accuracy ± mg	PK	Cat. No.
1	0.1	1	**9.900 566**
2	0.12	1	**9.900 567**
5	0.15	1	**9.900 568**
10	0.2	1	**9.900 569**
20	0.25	1	**9.900 570**
50	0.3	1	**9.900 571**
100	0.5	1	**9.900 572**
200	1.0	1	**9.900 573**
500	2.5	1	**9.900 574**
1000	5.0	1	**9.900 575**
2000	10.0	1	**9.900 576**
5000	25.0	1	**9.900 577**
10000	50.0	1	**9.900 578**

Also available: Single weights from 1mg to 2000 kg or complete weight sets from 1 mg to 10 kg in OIML-classes E1, E2, F1, F2, M1, M2, M3

2

2 Weighing scoops, stainless steel 18/10

NEW!

Capacity ml	PK	Cat. No.
3	1	**6.238 169**
6	1	**6.238 170**
10	1	**6.238 171**

3

3 Weighing scoops

Glass. Ideal for powders or granules which are dispensed via the tubular stem.

Capacity ml	PK	Cat. No.
3	1	**9.301 066**
6	1	**9.301 067**
10	1	**9.301 068**

4

4 Weighing scoops

Without counterweight.

Length mm	Material	PK	Cat. No.
70	Aluminium	1	**9.301 006**
90	Aluminium	1	**9.301 008**
105	Aluminium	1	**9.301 010**
60	Glass	1	**9.301 026**
80	Glass	1	**9.301 028**
100	Glass	1	**9.301 030**

5

6

5 6 Kjeldahl weighing boats 609, parchment paper

Ideal for weighing and transporting all types of sample. Especially for determination of nitrogen according to Kjeldahl (e.g. determination of total protein content in foodstuff). *GE Healthcare*
Made of nitrogen-free parchment paper. Can be dropped into the Kjeldahl flask and be dissolved together with the sample.

Width mm	Length mm	Height mm	PK	Cat. No.
10	55	10	100	**9.069 011**

E & OE.

Weighing bottles

DURAN®. DIN 12605. With interchangeable standard ground joint stopper, fused ceramic matt marking area, statement of volume and dimensions marked permanently on each weighing bottle.

1 Weighing bottles DURAN® with NS Stopper

DURAN®. With interchangeable NS stopper. With white inscription label.
Burned-in imprint of capacity and size.
Available in high or tall shape.

Capacity ml	Bottom dia. mm	Height mm	PK	Cat. No.
6	25	25	1	**9.300 022**
10	25	40	1	**9.300 113**
15	40	25	1	**9.300 021**
15	35	30	1	**9.300 023**
30	50	30	1	**9.300 032**
45	35	70	1	**9.300 123**
45	60	30	1	**9.300 037**
70	40	80	1	**9.300 124**
80	80	30	1	**9.300 041**
110	50	80	1	**9.300 127**

1

2 LLG-Aluminium weighing dish

NEW!

Aluminium foil, for sample handling with a flanged, crimped wall for rigidity. Finger-tab handle can be etched for identification prior to weighing. Made from oil-free, lightweight aluminium.

Article 6.236 854 is without finger-tab.

Dia. mm	Height mm	PK	Cat. No.
43	12	100	**6.238 138**
57	14	100	**6.238 139**
70	16	100	**6.238 140**
100	8	50	**6.236 854** 3

2

3

6.236 854

4 Aluminium sample dishes

Ideal for use with infrared moisture analysers. Samples can be evenly distributed horizontally to absorb heat uniformly over the entire dish area. Can also be used as laboratory dishes.

schuett-biotec

Dia. mm	Height mm	PK	Cat. No.
100	7	80	**9.106 265**

4

- 9.106 265 -

5 LLG-Weighing boats, PS

Polystyrene, disposable. Available in black or white.

Capacity ml	Dimensions mm	Colour	PK	Cat. No.
30	78 x 56 x 14	white	500	**9.950 190**
100	119 x 90 x 19	white	250	**9.950 191**
30	78 x 56 x 14	black	500	**9.950 192**
100	119 x 90 x 19	black	250	**9.950 193**

5

6 LLG-Weighing boats, antistatic, PS

Polystyrene, disposable. Antistatic, manufactured to eliminate the problems caused by static build-up when weighing fine powders.

Capacity ml	Dimensions mm	Colour	PK	Cat. No.
30	78 x 56 x 14	white	500	**9.950 194**
100	119 x 90 x 19	white	250	**9.950 195**
30	78 x 56 x 14	black	500	**9.950 196**
100	119 x 90 x 19	black	250	**9.950 197**

6

1 LLG Hexagonal Weighing Boats, antistatic, PS

Bend flexible boats at points to form pour spouts. Flat bottoms and sloping sides provide accurate transfer. These antistatic, polystrene boats are inert to most substances. Resist temperatures up to 150°C.

Size	Dimensions mm	Colour	PK	Cat. No.
Small	38 x 25 x 9	white	500	**9.900 893**
Medium	64 x 51 x 19	white	500	**9.900 894**
Large	102 x 76 x 22	white	500	**9.900 895**
X-Large	127 x 89 x 31	white	500	**9.900 896**

LLG-Weighing boats, PS

NEW!

Polystyrene.

Size	Dimensions (W x D x H) mm	Colour	PK	Cat. No.
Medium	90 x 90 x 7	white	500	**7.930 197**

2 LLG-Weighing boats, PS

Polystyrene.

Capacity ml	Dimensions (W x D x H) mm	Colour	PK	Cat. No.
7	46 x 46 x 8	White	1000	**9.900 792**
100	85 x 85 x 24	White	1000	**9.900 794**
250	140 x 140 x 22	White	1000	**9.900 796**
5	Diamond shaped	White	1000	**9.900 795**

3 LLG-Weighing boats, antistatic, PS

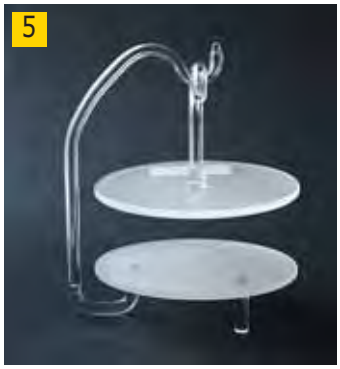
Polystyrene. Antistatic.

Capacity ml	Dimensions (W x D x H) mm	Colour	PK	Cat. No.
7	46 x 46 x 8	White	1000	**9.900 785**
100	85 x 85 x 24	White	1000	**9.900 786**
250	140 x 140 x 22	White	1000	**9.900 787**
5	Diamond shape	White	1000	**9.900 788**
7	46 x 46 x 8	Black	1000	**9.900 789**
100	85 x 85 x 24	Black	1000	**9.900 791**
250	140 x 140 x 22	Black	1000	**9.900 800**
5	Diamond shape	Black	1000	**9.900 801**

4 Weighing bottles, PP

PP. Transparent. with push-on lid. *Kartell*

Capacity L	Dia. mm	Height mm	PK	Cat. No.
30	30	50	1	**9.300 805**
25	40	30	1	**9.300 810**
65	40	60	1	**9.300 815**
65	60	35	1	**9.300 820**
50	50	30	1	**9.300 825**
200	60	90	1	**9.300 830**
400	70	120	1	**9.300 835**



5 Planar weighing apparatus

Glass. For all weighing procedures involving the dispersal of material into a thin layer.

Type	PK	Cat. No.
Planar weighing apparatus	1	**9.300 500**

1 Weighing boats MN808, Paper

Pack of 100 pieces. *MACHEREY-NAGEL*
Paper
Dimensions: 58 x 10 x 10mm

Type	PK	Cat. No.
MN808	100	**9.301 069**

1

2 Weighing paper, MN226

Block of 100 sheets. *MACHEREY-NAGEL*

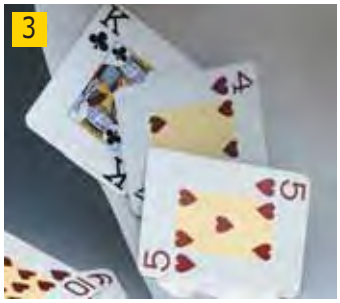
Type	Width mm	Length mm	PK	Cat. No.
MN 226	90	115	100	**9.058 975**

2

3 Playing card rejects

Standard size for use as disposable sample carriers or spatulas. Printed and laminated on both sides

Type	PK	Cat. No.
Playing card rejects	1	**9.190 940**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4 Weighing table, TWK I

High quality weighing table for damping the effects of harmonic and impact vibrations when using sensitive microbalances. Tubular steel frame with wood-block cladding. The weighing platform is constructed in shock-absorbing, artificial stone. With integral drawer for weighing utensils.
Damping approx. 7.5% at 5.5-16Hz vertical and horizontal frequency.

Width mm	Depth mm	Height mm	PK	Cat. No.
900	600	750	1	**9.733 060**

4

5 Weighing table, TWK II

Robust weighing table for use with ultramicro balances or vibration-sensitive equipment to dampen vibrations caused by resonance or impact shock. Solid, artificial stone block construction.
Damping approx. 7.5% at 13-29 Hz vertical and horizontal frequency.

Width mm	Depth mm	Height mm	PK	Cat. No.
900	600	750	1	**9.733 070**

5

6 Weighing table

For positioning of analytical balances. Vibration-free even for smallest sample quantities. *Köttermann*

Description	Width mm	Depth mm	Height mm	PK	Cat. No.
Weighing table	900	600	750	1	**9.731 285**

6

1 Anti-vibration platform, Vibrasorb

NEW!

Bel-Art Products

For absorbing and damping vibrations down to 9Hz. Comprises a moulded terazzo slab supported on four vibration absorbers with non-slip feet. Suitable for isolating sensitive analytical instruments such as balances and microscopes. Will support up to 16kg.

Width mm	Depth mm	Height mm	Weight kg	PK	Cat. No.
350	350	76	19	1	**9.941 600**
450	560	76	39	1	**9.951 600**

2 LLG-General purpose thermometer

NEW!

Graduation resistant against acids and alkalies, red filling. Graduations: 1°C.
Breakage protected versions with FEP-coating available on request.

Measuring range °C	Length mm	Immersion depth mm	Capillary	PK	Cat. No.
-35 ... +50	300	total	white enameled, round	1	**9.236 720**
-20 ... +110	300	total	white enameled, round	1	**6.206 594**
-20 ... +150	300	total	white enameled, round	1	**9.236 723**
-10 ... +110	260	total	yellow enameled, round	1	**9.236 721**
-10 ... +110	270	76mm	yellow enameled, round	1	**9.236 727**
-10 ... +150	260	total	yellow enameled, round	1	**9.236 722**
-10 ... +150	260	76mm	yellow enameled, round	1	**9.236 728**
-10 ... +200	300	total	yellow enameled, round	1	**9.236 724**
-10 ... +200	300	total	white enameled, round	1	**9.236 725**
-10 ... +200	300	76mm	yellow enameled, round	1	**9.236 729**
-10 ... +250	300	total	yellow enameled, round	1	**9.236 726**

3 LLG- General-purpose thermometers

Enclosed-scale type, with eyelet, 7 to 8mm diameter. With uncoated, prismatic measuring capillary. Red spirit filling (except 9.235 265: blue). Resolution 1°C.

Measuring range °C	Length mm	PK	Cat. No.
-10/0 ... +50	200	1	**9.235 245**
-10/0 ... +100	260	1	**9.235 250**
-10/0 ... +150	260	1	**9.235 255**
-10/0 ... +200*	300	1	**9.235 260**
-10/0 ... +250*	300	1	**9.235 265**

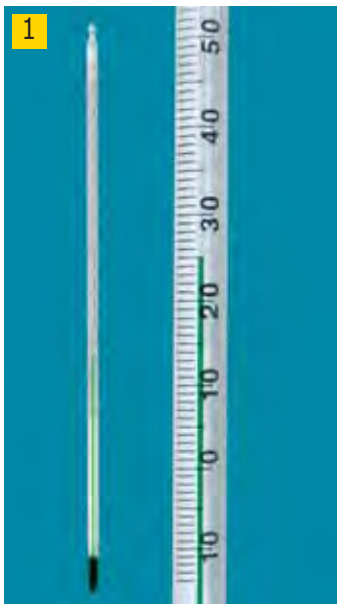
* Note: With these types the colour can fade after extended periods of use at higher temperatures.

1 LLG- General-purpose thermometers

Glass, solid stem, with loop, 6 to 7mm diameter, white backed. Environmentally friendly thermometer, with biodegradable, green spirit filling. Partial immersion 76mm.

Measuring range °C	Graduations °C	Length mm	PK	Cat. No.
-10/0 ... +110	1.0	300	1	**9.235 275**
-10/0 ... +110	0.5	300	1	**9.235 276**
-10/0 ... +150	1.0	300	1	**9.235 277**
-10 ... +250	2.0	300	1	**9.235 278**
-10 ... +360	2.0	300	1	**9.235 279**

1



2 LLG-Precision thermometer with certificate

NEW!

Filling: red, capillary: yellow enameled, round, immersion depth: total.
Optional available with official calibration certificate, works certificate or DKD-calibation certificate.
Please specify with order.
Breakage protected versions with FEP-coating available on request.

Measuring range °C	Graduations °C	Length mm	PK	Cat. No.
-50 ... +50	1.0	280	1	**9.236 800**
-10 ... +100	1.0	305	1	**9.236 783**
-10 ... +150	1.0	305	1	**9.236 784**
-10 ... +200	1.0	350	1	**9.236 788**
-50 ... +50	0.5	300	1	**9.236 801**
-10 ... +100	0.5	270	1	**9.236 785**
-10 ... +150	0.5	350	1	**9.236 786**

2

LLG-High-Precision thermometers

NEW!

For precise measuring. Filling: red, capillary: yellow enameled, round, immersion depth: total.
Optional available with works certificate or DKD-calibation certificate. Please specify with order.
Breakage protected versions with FEP-coating available on request.

Measuring range °C	Graduations °C	Length mm	PK	Cat. No.
-1 ... +101	0.1	610	1	**9.236 790**
-0 ... +50	0.1	420	1	**9.236 787**
-1 ... +200	0.2	610	1	**9.236 789**

3 LLG-Precision thermometer, -200°C up to +30°C

NEW!

For measuring low temperatures from -200 up to +30°C. Enclosed scale DIN 12778.
Graduations 1°C, immersion depth total.
Optional available with, works certificate or DKD-calibation certificate. Please specify with order.
Breakage protected versions with FEP-coating available on request.

3

Measuring range °C	Length mm	Capillary	Charge colour	PK	Cat. No.
-200 ... +30	350	blue reflecting, prismatic	Pent, red	1	**9.236 780**
-150 ... +30	300	white enameled, prismatic	Pent, red	1	**9.236 791**
-100 ... +30	305	transparent, prismatic	Alk, red	1	**9.236 781**
-50 ... +30	305	transparent, prismatic	Tol, red	1	**9.236 782**

Precision laboratory thermometers

NEW!

Precision laboratory thermometers, enclosed scale, dia. 8 to 9mm. *Schneider*
Bluereflecting prismatic capillary with mercury filling.
Unnamed capillary, red filling total immersion all items suitable for calibration.

Measuring range °C	Resolution °C	Length mm	PK	Cat. No.
0 ... +100	1/100	550	1	**6.236 472**

All listed items can be delivered with official calibration, works calibration certificate and DKD-calibration certificate. Prices on request.

1

1 ASTM precision thermometers

NEW!

ASTM precision thermometers, especially for oil and fuel testing, tubular, capillary, coated yellow round, verifiable. *Schneider*

Measuring range °C	Resolution °C	Charge	Length mm	Immersion depth mm	PK	Cat. No.
-5 ... +400	1/1	Hg	410	76	1	**6.226 998**
-38 ... +50	1/1	Hg	225	108	1	**6.226 569**
-80 ... +20	1/1	red	225	76	1	**6.223 459**
-2 ... +300	1/1	Hg	380	380	1	**6.226 999**
-2 ... +400	1/1	Hg	380	380	1	**6.227 000**
+90 ... +370	2/1	Hg	285	57	1	**6.226 208**
-6 ... +400	2/1	Hg	305	25	1	**6.233 890**
-20 ... +102	1/5	Hg	415	total	1	**6.228 994**
-2 ... +80	1/5	Hg	390	79	1	**6.226 902**
+34 ... +42	1/10	Hg	270	270	1	**6.233 875**
+95 ... +103	1/10	Hg	270	270	1	**6.233 876**
-38 ... +42	1/5	Hg	415	415	1	**6.233 877**
+25 ... +105	1/5	Hg	415	50	1	**6.223 178**
+90 ... +170	1/5	Hg	415	50	1	**6.233 878**
+48 ... +102	1/5	Hg	390	100	1	**6.241 039**
+98 ... +152	1/5	Hg	390	100	1	**6.241 037**
+48,6 ... +51,4	1/20	Hg	300	300	1	**6.226 568**

All listed items can be delivered with official calibration, works calibration certificate and DKD-calibration certificate. Prices on request.

2

2 Support Labo-Clip

Stable support for clamping test tubes, thermometers, pH electrodes and other laboratory instruments onto laboratory containers (e.g. beakers). Extensive chemical resistance, with strong flexible foam rubber plate perforated with 5 apertures of varying diameters. Metal components are corrosion-resistant. Applicable from -40°C to +120°C. *Amarell*

Type	PK	Cat. No.
Labo-Clip	1	**9.234 990**

1 LLG-metallic protection cases

NEW!

For all common glass thermometers.

For Thermometers Length mm	Overall length mm	Material	PK	Cat. No.
200	225	Brass	1	**9.236 900**
220	245	Brass	1	**9.236 909**
250	275	Brass	1	**9.236 901**
280	305	Brass	1	**9.236 910**
300	325	Brass	1	**9.236 902**
320	345	Brass	1	**9.236 911**
340	365	Brass	1	**9.236 903**
360	385	Brass	1	**9.236 912**
380	405	Brass	1	**9.236 904**
400	425	Brass	1	**9.236 905**
420	445	Brass	1	**9.236 913**
450	475	Brass	1	**9.236 906**
480	505	Brass	1	**9.236 907**
500	525	Brass	1	**9.236 914**
550	575	Brass	1	**9.236 908**
200	225	Stainless steel	1	**9.236 920**
250	275	Stainless steel	1	**9.236 921**
280	305	Stainless steel	1	**9.236 923**
300	325	Stainless steel	1	**9.236 922**

1

2 LLG-Exact-Temp thermometers

For monitoring critical temperature conditions in
- deep freezes
- refrigerators
- cold rooms
- blood bank refrigerators
- incubators
- warming chambers

Characteristics:
- thermometer certifiable to National Standards
- supplied with works test certificate
- thermometer stem safely encapsulated in PTFE
- each thermometer is mounted in a square-shaped shatter-proof plastic bottle filled with a liquid to ensure accurate readings despite the opening and closing of instrument doors.
- each thermometer has an individual serial number.

2

LLG-Exact-Temp Standard thermometers, red spirit-filled

For	Measuring range °C	Grad. °C	Length mm	Liquid filling	PK	Cat. No.
Freezers	-90 ... +20	1.0	145	Propylene Glycol	1	**9.235 663**
Refrigerators	-30 ... 0	0.5	125	Propylene Glycol	1	**9.235 664**
Blood banks	-5 ... +20	0.5	145	Ethylene Glycol	1	**9.235 665**
Coolers	-5 ... +15	0.5	125	Ethylene Glycol	1	**9.235 666**
Incubators	+18 ... +50	0.5	135	Ethylene Glycol	1	**9.235 667**
Warming rooms, ovens	+20 ... +130	1.0	135	Vermiculite	1	**9.235 668**
Warming rooms, ovens	+35 ... +200	1.0	145	Vermiculite	1	**9.235 669**

LLG-Exact-Temp Standard thermometers, mercury-filled

For	Measuring range °C	Grad. °C	Length mm	Liquid filling	PK	Cat. No.
Freezers	-30 ... 0	0.5	115	Propylene Glycol	1	**9.235 670**
Refrigerators	-5 ... +15	0.5	125	Ethylene Glycol	1	**9.235 671**
Incubators	+18 ... +50	0.5	135	Ethylene Glycol	1	**9.235 672**
Warming rooms, ovens	+20 ... +130	1.0	135	Vermiculite	1	**9.235 673**
Warming rooms, ovens	+35 ... +200	1.0	145	Vermiculite	1	**9.235 674**

LLG-Precision thermometers Exact-Temp, blue spirit-filled

For	Measuring range °C	Grad. °C	Length mm	Liquid filling	PK	Cat. No.
Freezers	-25 ... -5	0.1	210	Propylene Glycol	1	**9.235 675**
Refrigerators	-2 ... +10	0.1	180	Propylene Glycol	1	**9.235 676**
Blood banks	-2 ... +10	0.1	180	Ethylene Glycol	1	**9.235 677**
Incubators	+15 ... +30	0.1	180	Ethylene Glycol	1	**9.235 678**
Incubators	+25 ... +45	0.1	190	Ethylene Glycol	1	**9.235 679**
Warming rooms, ovens	+95 ... +115	0.1	200	Vermiculite	1	**9.235 680**

LLG-Precision thermometers Exact-Temp, mercury-filled

For	Measuring range °C	Grad. °C	Length mm	Liquid filling	PK	Cat. No.
Cold rooms, Freezers	-25 ... -5	0.1	210	Propylene Glycol	1	**9.235 681**
Refrigerators	-2 ... +10	0.1	180	Propylene Glycol	1	**9.235 682**
Blood banks	-2 ... +10	0.1	180	Ethylene Glycol	1	**9.235 683**
Incubators	+15 ... +30	0.1	180	Ethylene Glycol	1	**9.235 684**
Incubators	+25 ... +45	0.1	190	Ethylene Glycol	1	**9.235 685**
Warming rooms, ovens	+95 ... +115	0.1	200	Vermiculite	1	**9.235 686**

1

1 LLG-Low temperature thermometers

Suitable for official calibration. Enclosed scale type, 8 to 9mm diameter, with translucent glass scale and Richter seal. Prismatic, uncoated measuring capillary. The -200 to +30°C thermometer has a luminous blue measuring capillary, and is pentane filled. Further thermometers are available, red toluene filled with uncoated measuring capillary. Graduated every 1°C.

Measuring range °C	Length mm	PK	Cat. No.
-50 ... +50	300	1	**9.235 705**
-80 ... +30	300	1	**9.235 708**
-100 ... +30	300	1	**9.235 710**
-200 ... +30	300	1	**9.235 720**

2

2 LLG-Pocket thermometers

NEW!

Complete with case.
Graduations 1°C, length 140mm, immersion depth total.

Measuring range °C	Form	Capillary	Charge colour	PK	Cat. No.
-38 ... +50	enclosed scale	transparent, prismatic	red	1	**9.236 740**
-10 ... +50	enclosed scale	transparent, prismatic	red	1	**9.236 741**
-10 ... +100	enclosed scale	transparent, prismatic	red	1	**9.236 742**
-38 ... +50	enclosed scale	transparent, prismatic	blue	1	**9.236 743**
-10 ... +50	enclosed scale	transparent, prismatic	blue	1	**9.236 750**
-10 ... +100	enclosed scale	transparent, prismatic	blue	1	**9.236 751**
-38 ... +50	stem form	white enameled, prismatic	red	1	**9.236 752**
-10 ... +50	stem form	white enameled, prismatic	red	1	**9.236 753**
-10 ... +100	stem form	white enameled, prismatic	red	1	**9.236 754**
-38 ... +50	stem form	white enameled, prismatic	blue	1	**9.236 755**
-10 ... +50	stem form	white enameled, prismatic	blue	1	**9.236 756**
-10 ... +100	stem form	white enameled, prismatic	blue	1	**9.236 757**

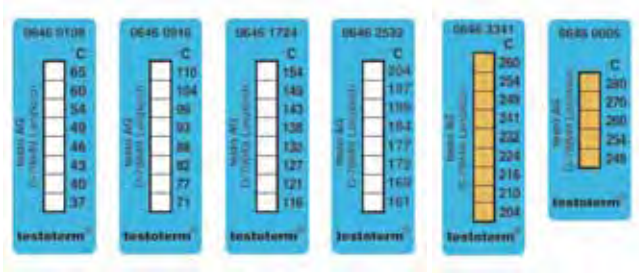
1 8-step irreversible temperature strips

Thermax strips, 8-step. 5 types cover the measuring range +37 to +280°C, each strip displays 8 different temperatures. Each strip measures 50 x 18mm.

Testo

Type	Measuring range °C	Description	PK	Cat. No.
06460108	+37 ... +65	8 temperature changing points	10	**9.246 002**
06460916	+71 ... +110	8 temperature changing points	10	**9.246 003**
06461724	+116 ... +154	8 temperature changing points	10	**9.246 004**
06462532	+161 ... +204	8 temperature changing points	10	**9.246 005**
06463341	+204 ... +260	8 temperature changing points	10	**9.246 006**

1

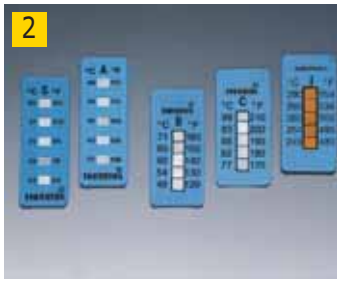


2 5-step irreversible temperature strips

5-step irreversible temperature measuring strips covering the temperature range 29 to 290°C.
Each strip measures 35 x 15mm.

Type	Measuring range °C	PK	Cat. No.
S	+29 ... +40	10	**9.246 310**
A	+37 ... +46	10	**9.246 311**
B	+49 ... +71	10	**9.246 312**
C	+77 ... +99	10	**9.246 313**
D	+104 ... +127	10	**9.246 314**
E	+132 ... +154	10	**9.246 315**
F	+160 ... +182	10	**9.246 316**
G	+188 ... +210	10	**9.246 317**
H	+ 216 ... +249	10	**9.246 318**
I	+249 ... +290	10	**9.246 319**

2



3 Refrigerator thermometer

Plastic, with loop or hook clip mountings. Measuring range -40 to +40°C. Graduated every 1°C.
Dimensions (L x dia.) 185 x 20mm.

Type	PK	Cat. No.
Refrigerator thermometer	1	**9.242 340**

3

4 Maxima-Minima-Thermometer

TFA Dostmann

- ivory plastic
- beige
- with push button
- mercury-free

Dimensions: 230 x 60mm
Weight: 120g

Type	PK	Cat. No.
Maxima-Minima-Thermometer	1	**9.241 134**

4

1

1 Maximum/Minimum Indoor/outdoor thermometer

Amarell

Optimal for controlling of refrigerator and freezer temperature.
- 50 to +70°C in 0.1°C. External remote sensor cable, length 3m, with stand and accessories for wall mounting. Dimensions: approx. 80 x 55 x 20mm, with battery.

Official calibration certificate with one or two test points available on request.

Type	PK	Cat. No.
Maximum/Minimum indoor/outdoor thermometer	1	**9.235 120**

2

2 Digital Maxima-Minima-Thermometer

TFA Dostmann

Digital thermometer, wall hanging, for indoor or outdoor use. With blue, splash-proof casing, selectable °C/°F ranges and battery.

weight: 161g

Measuring range °C	Width mm	Depth mm	Height mm	PK	Cat. No.
-50 ... +70	75	44	115	1	**9.241 131**

3

3 Laboratory Max./Min. thermometer

Display of current, highest and lowest temperature, hold function, alarm at freely adjustable temperature values (upper/lower limit), measuring range -50 to +70°C, accuracy ±0.5°C at -20 to +25°C, otherwise ±1°C, selectable °C/°F readout. Supplied with table stand and magnet,
probe with 3m cable and 3V Lithium CR2032 button cell.

Type	PK	Cat. No.
Laboratory Max./Min. thermometer	1	**9.851 022**

4

4 Thermometer Checkfridge

Hanna

- specially designed to monitor the internal temperature of freezers and refrigeration units
- magnetic backing provides an easy way to attach the thermometer to all metal refrigerators and freezers
- the sensor with 1 metre cable can be easily placed within the freezer/fridge cabinet
- Very high accuracy
- The unique Cal Check Function enables the user to check the internal electronics of the thermometer

Specifications:

Measuring range:	-50 to +150°C
Accuracy:	±0.3°C (-50 to +90°C)
Probe:	40 x 5mm, with 1 metre cable
Battery type:	1 x 1.5V
Weight:	100g

Type	PK	Cat. No.
Checkfridge	1	**9.851 098**

E & OE.

1 Thermometer Pocket-Digitemp

Waterproof instrument in plastic housing (food-grade).
Low budget, durable instrument for measuring temperature in air, gas, liquid and platical substances.

Range of applications: Food (HACCP), industry, agriculture and hobby.
Features: waterproof, 1-second measuring frequency, Max-Min-Hold function, °C/°F-selectable.

Sensor:	NTC
Measuring range:	-40°C to +200°C
Resolution:	0.1°C
Accurancy:	±0.8°C (at 0°C to 100°C) others 1.5°C
Dimensions:	202 x 20 x 16mm (long version) 150 x 20 x 16mm (short version)
Probe dimensions:	126 x 3.5mm (long version) 75 x 3.5mm (short version)
Weight:	40g

Type	PK	Cat. No.
short version	1	**9.851 028**
long version	1	**9.851 029**

2 LLG-Digital pocket themometer Type 12090

NEW!

Waterproof. Measuring range -50 to +150°C/-58 to +302°F, accuracy ±1°C. With hold function.
Probe made of stainless steel, 85 x 3.5mm, with protective plastic sleeve, with battery 1 x 1.5V (LR44).
Dimensions (L x W): 185 x 30mm.

Type	PK	Cat. No.
LLG-Digital pocket themometer Type 12090	1	**9.236 707**

3 LLG-Digital pocket themometer Type 12080

NEW!

Waterproof. Measuring range -50 to +300°C/-58 to +572°F, accuracy ±1°C until 150°C, above ±2°C. With hold function and Max/Min function. Probe made of stainless steel, 85 x 3.5mm, with protective plastice sleeve, with battery 1 x 1.5V (LR44). Dimensions (L x W): 195 x 50mm.

Type	PK	Cat. No.
LLG-Digital pocket themometer Type 12080	1	**9.236 703**

4 LLG-Digital pocket themometer Type 12060

NEW!

Measuring range -50 to +150°C, accuracy ±1°C. With hold function. Probe made of stainless steel, 125 x 3.5mm, with protective plastice sleeve and clip, with battery 1 x 1.5V (LR44). Dimensions (L x W): 60 x 20mm.

Type	PK	Cat. No.
LLG-Digital pocket themometer Type 12060	1	**9.236 701**

5 Mini-Thermometer

Dipping/penetration thermometer for measuring the temperature in air, soft or powdery materials and liquids. *Testo*

Specifications

Measuring range:	-50 to +250°C
Accuracy (±1 Digit):	±1°C (-10 to +99.9°C) ±2% of measurement value (+100 to +199.9°C) ±3% of measurement value (+200 to +250°C)
Readabilty:	0.1°C (-19.9 to +199.9°C) 1°C (remaining range)
Operating range:	-10 to +50°C
Batterie:	Coin cell battery LR44, 1.5 volt

Description	PK	Cat. No.
Coin cell battery LR44, 1.5 volt	2	**9.012 932**
Mini-Thermometer	1	**9.243 141**

1

1 Digital hand held thermometer Type 12010

NEW!

Measuring range -50 bis +150°C, accuracy ±1°C. With hold function. Penetration probe 105 x 3.5mm.
With battery 1 x 1.5V (LR44). Dimensions (L x W): 75 x 40mm.

Type	PK	Cat. No.
Digital hand held thermometer Type 12010	1	**9.236 700**

2

2 Digital hand held thermometer Type 12100

NEW!

Waterproof. Measuring range -50 to +150°C/-58 to +302°F, accuracy ±1°C until 150°C above ±2°C. With hold function and Max/Min function. Memory capacity 10. Penetration probe made from stainless steel, 130 x 3.5mm with 1m cabel and handle. With battery 1 x 1.5V "AAA". Dimensions (L x W): 180 x 85mm.

Type	PK	Cat. No.
Digital hand held thermometer Type 12100	1	**9.236 704**

3

3 Digital hand held thermometer Type 12200

NEW!

Waterproof. Measuring range -50 to +300°C/-58 to +572°F, accuracy ±1°C until 150°C above ±2°C, accuracy ±1°C. With hold function and Max/Min function. Penetration probe made of stainless steel, 140 x 3.5mm with 1m cabel and handle. With battery 1 x 1.5V "AAA". Dimensions (L x W): 140 x 75mm.

Type	PK	Cat. No.
Digital hand held thermometer Type 12200	1	**9.236 705**

4

9.236 708

Hand held thermometer Type 12300

NEW!

Suitable for all probes Type K (NiCr-Ni). Measuring range -200 to +1370°C/-328 to +2498°F. With hold and Max/Min function and 10 values memory function. With temperature limit alarm function, integrated display light and holster. With battery 1 x 1.5V "AAA". Dimensions (L x W): 200 x 85mm. Accuracy: ±1°C from -49°C to +740°C.

Probe (9.236 709) - please order separately.

Type	PK	Cat. No.	
Hand held thermometer Type 12300, without sensor	1	**9.236 708**	4
mineral-insulated thermocouple 1 x NiCr-Ni type K acc. to DIN EN 60584 class 1	1	**9.236 709**	5

5

9.236 709

1 Food and frozen goods thermometers

Testo

For measurements according to the
EU Directive concerning the control of foodstuffs (HACCP).
Waterproof, IP65protection level, can be rinsed. With battery.

Type 105. One-handed, penetration thermometer.

Sensor (Dia. x L):	5 x 100mm
Measuring tip dia.:	3.5mm
Accuracy:	-20 to +100°C: ±0.5°C rest of range: ±1°C.

Type	Measuring range °C	PK	Cat. No.
105	-50 ... +275	1	**9.718 002**

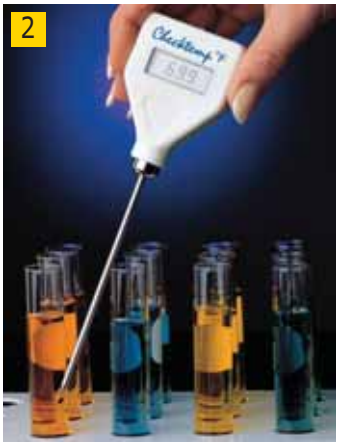
2 Digital thermometer, Checktemp X

Hanna

With very high measurement accuracy of ±0.3°C (-20 to +90°C) and integral stainless steel insertion probe. Equipped with the unique "Checkcal" function which tests internal instrument electronics when the Checktemp is switched on.

Range:	-50 to +150°C
Resolution:	0.1°C
Accuracy:	±0.3°C (-20 to 90°C) ±0.5°C (rest of range)
Overall L x W x H:	170 x 50 x 25mm
Probe L x dia.:	105 x 3mm
Weight:	100g

Type	PK	Cat. No.
Checktemp C	1	**9.950 179**



3 Core thermometer Testo 106

Testo

Ideal for quick, simple core temperature measurements in various fields, e.g. restaurants, hotels, service kitchens, supermarkets etc. Wide measurement range and highly accurate. With Auto-Hold function for final reading.
Includes sensor protection cap and battery. Calibration certificate on request.

The testo 106-T1 kit also contains a TopSafe protective case and a holster clip for belt or wall.

Specifications

Temperature range (°C):	-50 to +275
Accuracy ±1 digit (°C):	±1% of measurement value (+100 to +275) ±0.5 (-30 to +99.9) ±1 (-50 to -30.1)
Resolution (°C):	0.1
Battery type:	Lithium (CR2032)

Type	PK	Cat. No.
Testo 106	1	**9.718 208**
Testo 106-T1 Kit	1	**9.718 209**
TopSafe protective sleeve (IP67)	1	**9.718 232**

1

1 Digital thermometer Checktemp 1 C

Hanna

With very high measurement accuracy of ±0.3°C (-20 to +90°C) and integral stainless steel insertion probe with handle and 1 metre cable, ensuring flexibility in use. Equipped with the unique "Checkcal" function which tests internal instrument electronics when the Checktemp 1 is switched on.

Specifications

Range:	-50 to +150°C
Resolution:	0.1°C
Accuracy:	±0.3°C (-20 to 90°C) ±0.5°C (rest of range)
Overall L x W x H:	170 x 50 x 25mm
Probe length L x dia.:	106 x 3mm
Weight:	80g

Type	PK	Cat. No.
Checktemp 1 C	1	**9.950 180**

2

2 Digital thermometer ama-digit ad 14 th

Amarell

Temperature range: -35 to +500°C, resolution 1°C. Rapid response and ergonomic design. Dimensions (WxDxH) 90 x 60 x 25mm. With stainless steel probe (L x dia.) approx. 100 x 2.5mm. With battery.

Type	PK	Cat. No.
ama-digit ad 14 th	1	**9.243 100**

3

3 Digital thermometer ama-digit ad 15 th

Amarell

Color back (available in 4 additional colors)Range: -40 to +120°C, resolution 0.1°C. Precise and cost-effective. Dimensions (WxDxH) 90 x 60 x 25mm. With stainless steel probe approx. 30 x 2.5mm (L x dia). With battery.

Type	PK	Cat. No.
ama-digit ad 15 th	1	**9.243 101**

4

4 Digital thermometer ama-digit ad 20 th

Amarell

Temperature range: -50 to +300°C. Resolution 0.1°C from -50 to +180°C, 1°C for the rest of the range. Dimensions (WxDxH) 90 x 60 x 25mm. With battery. For appropriate temperature probes see order no. 9.243 111 to 114.

Type	PK	Cat. No.
ama-digit ad 20 th	1	**9.243 102**

E & OE.

1 Temperature probes, Pt100 for ama-digit ad 20 th

Class A. Stainless steel sheathed probe, approx. 105 x 3mm L x dia. *Amarell*
With handle and approx. 1m cable.

Type	PK	Cat. No.
Pt100 immersion probe	1	**9.243 111**
Pt100 penetration probe	1	**9.243 112**
Pt100 surface probe	1	**9.243 113**
Pt100 air probe	1	**9.243 114**

1

Thermometers TFN-Series

1- or 2-Channel thermometers for use with thermocouples (Type K, J, T, E) *ebro*
TFN 520/TFN 520 SMP/TFN 530/TFN 530 SMP

Ex-proof versions also available!

Applications:
Heating/Air-conditioning, ventilation/Air, gases, fluids/Surface temperature/Plastic materials/Laboratories

Attributes:
- Robust and impact resistant
- Min/Max, Hold facility
- °C/°F selectable
- Battery charge status indicator
- Changeable battery
- Factory calibration certificate

2

9.908 061

Measuring range Type K	-200 to +1200°C
Measuring range Type J	-100 to +800°C
Measuring range Type T	-50 to +300°C
Measuring range Type E	-100 to +600°C
Accuracy at +25°C, Type K	±0.3°C (-100 to +250°C)
Accuracy at +25°C, Type J	±0.3°C (-50 to +190°C)
Accuracy at +25°C, Type T	±0.3°C (-50 to +220°C)
Accuracy at +25°C, Type E	±0.3°C (-50 to +150°C) ±0.5 % for remaining range
Resolution Type K	0.1°C (-200 to +250°C)
Resolution Type J	0.1°C (-100 to +190°C)
Resolution Type T	0.1°C (-50 to +220°C)
Resolution Type E	0.1°C (-100 to +150°C) 1°C for remaining range
Protection class:	IP 67 (TFN 520/TFN 530); IP 40 (TFN 520 SMP/TFN 530 SMP)
Dimensions:	115 x 54 x 22mm
Housing:	ABS
Weight:	approx. 90g
Sensor:	external; thermocouple Type K, J, T, E
Sensor connection:	LEMO (TFN 520/TFN 530); SMP (TFN 520 SMP/TFN 530 SMP)
Number of channels:	1 (TFN 520/TFN 520 SMP); 2 (TFN 530/TFN 530 SMP)
Battery:	Lithium, 3 V; battery life approx. 5 years
Measuring rate:	0.5 to 15 secs.

3

9.908 063

Type	Description	PK	Cat. No.	
TFN 520	Thermometer (Lemo connection)	1	**9.908 060**	
TFN 520-SMP	Thermometer (SMP Connection)	1	**9.908 061**	2
TFN 530	Thermometer (Lemo Connection)	1	**9.908 062**	
TFN 530-SMP	Thermometer (SMP Connection)	1	**9.908 063**	3
TPN 211	Penetration probe, SMP	1	**9.908 064**	
TPN 341	Paddle probe, SMP	1	**9.908 065**	
TPN 140	Rod probe, 3mm dia., 185mm length, Lemo	1	**9.908 066**	
TPN 360	Surface probe up to 500°C, 15mm dia., 30mm length, 1m silicone cable, Lemo	1	**9.908 067**	
TPN 230	Penetration probe up to 500°C, 2.1mm dia., 100mm length, silicone cable, Lemo	1	**9.908 068**	

1

6.231 995

2

6.230 658

Core Thermometer TTX 100/110

NEW!

ebro

- according DIN EN 13485
- fast measurement
- robust and impackt resistant, replaceable battery
- factory calibration certificate

Specifications

Measuring range:	-50 to +350°C
Accuracy:	±0.8°C or ±0.8%, with the bigger value being applicable
Resolution:	0.1°C from -60°C to + 199°C and 1°C, for the remaining measuring range
Housing material:	ABS
Operating temperature:	-20°C to +50°C
Storage temperature:	-30°C to +70°C
Reaction time (90%):	5s
Dimensions:	90x 42 x 17mm
Battery life:	typical 100 h with uninterrupted use
Battery:	CR 2032, replaceable
Cable for TTX 100:	Blue silicone cable, 4mm, length 600mm, temperature resistant from -33 to + 200°C
Protection class:	IP 55

Type	Description	PK	Cat. No.	
TTX 100	with fixed probe	1	**6.231 995**	1
TTX 110	without fixed probe	1	**6.230 658**	2

3

3 Electronic digital thermometer ad 1700 th

NEW!

Amarell

Range: -200 to +1200°C, switchable from 0.1°C to 0.01°C,
accuracy ±0.02°C from-20 to +200°C,
with 2 connection possibilities for one Pt 100 probe and one Type K/NiCr-Ni probe,
hold function, maxima/minima function, possibility of memory for 200 data sets,
casing 200 x 68 x 35mm, in robust case. Device without immersion probe.

Type	PK	Cat. No.
Electronic digital thermometer ad 1700 th	1	**9.242 990**
Serial interface RS 232	1	**9.242 991**
Software with PC connection cable	1	**9.242 992**
9V mains adaptor	1	**9.242 993**

4

4 Immersion probe for thermometer ad 1700 th

NEW!

Stainless steel. With handle and 1m PVC cable.

Amarell

Type	Description	Dimensions mm	Measuring range °C	PK	Cat. No.
Pt100	class B	150 x 3	-200 to +750	1	**9.242 994**
Pt100	class B*	150 x 3	-200 to +650	1	**9.242 995**
Type K	NiCr-Ni	200 x 3	-200 to +1150	1	**9.242 996**

* precalibrated at 0°C and +50°C

1 Temperature meter, digital, testo 922/925

Without probe. **With battery and calibration protocol.** *Testo*
For °C, °F, °K. Hold function and battery display.

Model testo 925:
Economical. Very robust. With 1 measuring input.

Model testo 922:
With 2 measuring inputs.

Measuring range:	-50 to +1000°C
Sensor:	Type K (NiCr-Ni)
Accuracy:	-40 to +900°C : ±0.5°C, ±0.3% remaining range: ±0.7°C, 0.5%
Battery:	9V, 6F22

Type	PK	Cat. No.
testo 925	1	**9.851 324**
testo 922	1	**9.851 325**

1

Digital thermometers, testo 925 /922, accessory probes

Testo

- Waterproof immersion/penetration probe
- Precise, watertight food probe, stainless steel, resistant to cleaning by aggressive materials and oven-proof up to 205°C
- Precise and rapid, waterproof immersion probe
- Rapid reaction surface probe
- Robust food penetration probe with special handle
- Robust, economical, air probe

Description	PK	Cat. No.
Immersion / penetration probe	1	**9.718 200**
Stainless steel food probe	1	**9.718 201**
Immersion probe	1	**9.718 202**
Surface probe	1	**9.718 222**
Penetration food probe	1	**9.718 203**
Air probe	1	**9.718 230**

Accessories for temperture meters testo 925/922

Testo

Type	For	PK	Cat. No.
TopSafe testo 925	protective cover against impact and dust	1	**9.718 011**
TopSafe testo 922	protective cover against impact and dust	1	**9.718 020**

Digital thermometers testo 110/112

For use with accessory NTC sensor probes. For control measurements in the food industry and laboratories. Features: switchable °C readout, with Hold function, low battery indicator and battery saving automatic switch-off after a period without use. *Testo*
With battery and calibration certificate.

Accuracy testo 110:
System accuracy using immersion/penetration probes.
-20 to +80°C : ±0.2°C, ±0.3°C: rest of range

Model testo 112:
Suitable for verification use between -50 to +120°C.
Accuracy in accordance with notified requirements, with internal temperature monitoring.

Battery: 9V, 6F22

Type	Measuring range °C	PK	Cat. No.	
testo 110	-50 ... +150	1	**9.851 300**	2
testo 112	-50 ... +300	1	**9.851 299**	3

2

9.851 300

3

9.851 299

Digital thermometers testo 110/112, accessories

Testo

For	Type	Dia. mm	Length mm	Measuring range °C	PK	Cat. No.
testo 110	TopSafe (IP68 protective boot)			-	1	**9.718 020**
testo 112	TopSafe (IP68 protective boot)			-	1	**9.718 011**
testo 110	NTC immersion/penetration probe	4	110	-50 ... +150	1	**9.851 716**
testo 110	NTC laboratory probe, glass sheathed	6	200	-50 ... +150	1	**9.851 717**
testo 110	NTC surface probe, with widened measuring tIP	5	115	-50 ... +150	1	**9.851 720**
testo 110	NTC air probe, robust	5	115	-50 ... +125	1	**9.851 723**
testo 112	NTC food probe, appropriate for verification	4	124	-25 ... +120	1	**9.851 315**
testo 112	NTC immersion/penetration probe, appropriate for verification	5	115	-25 ... +120	1	**9.851 348**
testo 112	NTC air probe, appropriate for verification	5	115	-25 ... +120	1	**9.851 349**
testo 110	Robust food penetration probe with special handle	5	115	-25 ... +150	1	**9.851 352**

1 Temperature Probe Lemo-Compact Pt100

BOLA

Temperature probe with integral Lemo-connector. Particularly useful for measuring temperature in aggressive media (temperature range: -200°C to +250°C). The temperature element is located in a stainless steel core which is entirely sealed in a solid and seamless PTFE coating. This provides high chemical resistance and rigidity, however, the probe can be bent manually to the desired shape. The tip of the probe is narrower (6mm dia.) for faster measurement response.
Connector: 1 x Lemo, size 1, connector with 4 cores. The connector is situated directly at the end of the probe so that it can be used for further applications without removing any cables.

Dia. mm	Length mm	Effective length mm	PK	Cat. No.
8	170	100	1	**9.243 221**
8	370	300	1	**9.243 222**
8	470	400	1	**9.243 223**
8	570	500	1	**9.243 224**

2 Double Temperature Probe PT 100 Lemo Compact

BOLA

Temperature probe with two independent temperature elements and two Lemo-connectors.
Particularly useful for parallel evaluation of values measured in aggressive media (temperature range: -200°C to +250°C). The temperature elements are located in a stainless steel core which is entirely sealed in a solid and seamless PTFE coating. This provides high chemical resistance and rigity, however, the probe can be bent manually to the desired shape. The tip of the probe is smaller (6mm dia.) for faster measurement response. 2 x Lemo size 1 connectors, with 4 cores. Both connectors are situated directly at the end of the probe. It can easily be used for further applications without removing any cables.

Dia. mm	Length mm	Effective length mm	PK	Cat. No.
8	400	300	1	**9.243 226**
8	500	400	1	**9.243 227**
8	600	500	1	**9.243 228**

E & OE.

1 Infrared-Thermometer TFI 220

NEW!

1

ebro

Applications:
- Non-contact temperature measurement via infrared
- Incoming goods inspection

Attributes:
- Fast measurement
- Optics D:S = 12:1
- Factory calibration certificate
- Laser pointer
- Exchangeable battery
- Two fixed emissivity factors for goods and storage

Specifications

Measuring range:	-35°C to +365°C
Accuracy:	±2.5°C or 2.5% (larger value applies)
Resolution:	0.2°C
Operating temperature:	0°C to +50°C
Reaction time:	1s
Emissivity factor:	0.95 or 0.7
Optics:	12:1
Battery:	AAA 1.5V
Battery life time:	14h by uninterrupted use
Housing material:	ABS
Dimensions:	148 x 112 x 41mm
Weight:	145g with batteries
Protection class:	IP 20
Certificate:	Factory calibration certificate

Type	PK	Cat. No.
TFI 220 incl. factory calibration certificate	1	**9.908 097**

2 Infra-red thermometer ScanTemp 385

NEW!

2

With IR thermometers you can measure surface temperature.
A short response time and non-contact measurement are key advantages.

Ideal for monitoring applications such as:
- moving parts (running paper webs...)
- registering the surface temperature of gears and motors
- checking live electrical parts (components, transformers...)
- newly coated or painted parts
- food and corrosive substances

Specifications

Temperature range:	-35°C to +365°C
Precision:	±2% or 2°C, the higher value counts
Response time:	< 1 sec
Spectral sensitivity:	6 to 14µm
Operating temperature:	0 to 50°C
Optical resolution:	12:1
Laser:	Spot laser
Dimensions (L x W x H):	147.9 x 112.6 x 41.4mm
Weight:	150g (incl. packaging)
Battery:	2 x 1.5V AAA Batteries

Type	PK	Cat. No.
ScanTemp 385	1	**9.851 996**

1

1 Infra-red thermometer ScanTemp 410

Infra-red thermometer with laser aiming. For quick, easy and safe measurement of surface temperatures.
Easy to use: just point, press the button and read the measurement from the large, illuminated display.

Specifications

Temperature range:	-33°C to 500°C
Precision:	±2 % of measurement or 2°C
Response time:	0.5 secs.
Spectral sensitivity:	7 to 18µm
Operating temperature:	0 to 50°C
Optical resolution:	11:1
Laser:	Spot laser
Dimensions (L x W x H):	175 x 39 x 79mm
Weight:	300g (incl. packaging)
Battery:	2 x 1.5V AAA Batteries

Type	PK	Cat. No.
ScanTemp 410	1	**9.851 919**

2

2 Infrared thermometer, DualTemp Pro, with penetration probe

For simple, rapid, non-contact, temperature measurement.
- dual display
- wide measurement ranges:
- infra-red: -33 to +220°C
- conventional penetration probe: -55 to + 220°C
- measuring spot:distance ratio 3:1
- Max./ Min., Hold functions
- auto-off after 15 secs.
- belt-clip included
- accessories: certificate of calibration & pilot drill for taking measurements from frozen items

Resolution of display:	0.1°C
Accuracy (IR):	±2% or 2°C, whichever is largest
Accuracy (penetration probe):	±1% or ±1°C
Spectral sensitivity:	6 to 14µm
Adjustable emissivity:	0.10 to 1.00
Operating temperature:	0 to 50°C
Battery:	Lithium cell CR2032
Dimensions:	24.2 x 39.8 x 156mm
Weight:	380g (incl. packaging)

Type	PK	Cat. No.
DualTemp Pro	1	**9.851 023**

1 Infrared thermometers, ProScan series

- highest precision due to special glass lens (spot size up to a distance of 14 cm: 1.3 cm constant), measuring time: 0.3 seconds
- relation measuring distance/spot size 20:1 (ProScan 510)/ 40:1 (ProScan 520)
- display of current, highest and lowest temperature, hold function, alarm at freely adjustable temperature values (upper/ lower limit),
- with laser sighting, for contact-free measuring of surface temperature
- adjustable visual and acoustic alarm
- ProScan 520: incl. thermocouple sensor type K, USB interface and Windows software.

Accuracy:	±1.0% of measured value or ±1°C, larger value applies
Reproducibility:	±0.5% of measured value or ±1°C, larger value applies
Time:	300ms
Spectral sensitivity:	8 to 14µm
Display resolution:	0.1°C (4-digit LCD)
Working temperature range:	0 to 50°C
Voltage supply:	9 V PP3 battery
Dimensions L x W x H:	190 x 38 x 45mm
Weight:	500g (incl. packaging)
Dot laser	

Type	Temp. range °C	Emissivity	Optical resolution	PK	Cat. No.
ProScan 510	-32 ... +530	0.100 - 1.000	20 : 1	1	**9.851 928**
ProScan 520	-32 ... +760	0.100 - 1.500	40 : 1	1	**9.851 929**

Infra-red thermometers, testo 830 series

Testo

9.718 413

9.718 414

Testo 830-T1
Infra-red thermometer with 1-point laser sighting, adjustable limit values and alarm function

Testo 830-T2
Infra-red thermometer with 2-point laser sighting, adjustable limit values, alarm function and connection of external probes

Testo 830-T2 Set
Infra-red thermometer testo 830-T2 incl. surface sensor and protective leather case.

Testo 830-T3
IR temperature meter with close focus optics, incl. 2-point laser sighting, adjustable limit values, alarm function and alternative contact sensor probe socket, incl. battery

Technical Specifictations

Accuracy:	±1 digit at +23°C ambient temperature
Testo 830-T1/T2:	±1.5°C or 1.5% of meas. value (+0.1 to +400°C)
	±2°C or ±2% of meas. value (-30 to 0°C)
Testo 830-T3:	±1°C (-20 to +100°C)
	±2°C or ±2% of meas. value (remaining range)
Resolution:	0.5°C
Operating Temperature:	-20 to + 50°C
Storage Temperature:	-40 to +70°C
Weight:	200g
Battery type:	9V PP3 battery

Type	Measuring range °C	PK	Cat. No.	
testo 830-T1	-30 ... +400	1	**9.718 413**	2
testo 830-T2	-30 ... +400	1	**9.718 414**	3
testo 830-T2 Set	-30 ... +400	1	**9.718 417**	
testo 830-T3	-25 ... +400	1	**9.718 416**	

Protective leather case for Infra-red thermometer testo 830-T1/-T2/-T3

Testo

Description	PK	Cat. No.
Protective case, incl. belt holder	1	**9.718 409**

1

1 High Precision Thermometer Physics 1000

Schneider

The Physics 1000 high precision digital thermometer provides excellent resolution, precision and linearity for mains-independent, temperature measurements in quality assurance, process monitoring and product control applications. Primary work areas of Physics 1000 are within the chemical and pharmaceutical industries, food industry, as well as research and development.

- 1 output channel for digital interfaces
- high resolution A/D converter. 24bit, 2.5 Mbit/s
- easy operation via 4 soft keys and cursor
- measuring menu: 2 values and difference indication
- measuring functions: zero setting, hold
- multipoint calibration for highest accuracy
- functions: max/min value, 100 result memory
- sensor programming: dimension, resolution, hold, comment
- device configuration: device designation, display contrast and illumination time, baud rate
- language selection: german, english, french
- DKD Calibraton Certificate optional

Specifications

Measuring inputs:	2 input channels
Galv. disconnect.:	Semiconductor relay (50V)
Sensor function:	Pt100 (current of probe: 1mA)
Range:	-200°C to +400°C
Resolution:	0.001K
Self calibration:	Zero point, measuring current
Accuracy:	0.01% of value ±3 digit
Temperature drift:	0.003%/°C
Temperature units:	°C, °F, K
Output:	1 plug for interface cable
Display:	128 x 64 pixel, 8 lines
Display illumination:	2 white LED´s
Memory intern:	100 values
Battery operation:	3 x 1.5V AA Alkaline
Current consumption	
without illumination:	20mA
with illumination:	40mA
Mains adapter:	230V a.c./12V d.c., 200mA /40mA
Dimensions (L x W x H):	127 x 83 x 42mm
Weight housing:	290g
Material housing:	ABS (max. 70°C)
Protection class, DIN EN 60529:	IP54

Type	Probe type	Temp. range °C	PK	Cat. No.
Physics 1000			1	**9.908 040**
Resistance thermometer WT-GL-303-3/6*	glass, L= 250mm, diam. 6 mm, recessed	-50 ... +310	1	**9.908 041**
Resistance thermometer WT-MI-303-D-30E*	metal, L= 400 mm, diam. 3 mm, continuous	-90 ... +410	1	**9.908 042**

*Pt100 to DIN EN 60751 class A, 4-Leiterschaltung

2 High Precision Thermometer Physics

NEW!

Sets consisting of: measuring device PHYSICS with thermocouple or sensor Pt100 (250mm, stainless steel), cable 2m USB-Data cable Adapter 12V, 200mA 3 Batteries Mignon Alkaline, Users Manual in English Software PHYSISC View DKD, calibration certificate in soild case.

Description	Measuring range °C	Resolution °C	Probe type	PK	Cat. No.
Set PHYSICS 51	-100 ... +800	0.01	Thermocouple	1	**9.773 881**
Set PHYSICS 300	-90 ... +350	0.01	Pt100	1	**9.773 880**
Set PHYSICS 1000	-50 ... +400	0.001	Pt100	1	**9.773 899**

2

1 Thermometers, digital, professional level, TFX 430 series

1

ebro

Applications:
- temperature monitoring
- laboratory
- air, liquids, plastic masses
- aggressive media, surfaces
- process monitoring
- reference measurement

Features:
- high accuracy
- four-wire measuring system
- waterproof IP67
- approx. 5 years battery life
- factory calibration certificate
- different probes for different applications

Specifications

Measuring range:	-100 to +500°C
Accuracy:	without probe: ±0.1°C (from -50 to +100°C); remaining measuring range: ±0.2°C with probe: ±0.05°C (from -50 to +199.99°C); remaining measuring range: ±0.2°C
Resolution:	without probe: 0.02°C (from -50.00 to +99.98°C); remaining measuring range: 0.1°C with probe: 0.01°C (from -100 to +199.99°C); remaining measuring range: 0.1°C
Operating temperature:	-20 to +50°C
Storage temperature:	-30 to +70°C
Probes:	Pt100
Measurement interval:	1 to 15 secs
Battery:	Lithium 3V, 1Ah, Type CR2477
Switch-off:	Automatically after 2 hours
Dimensions:	109 x 54 x 22mm
Weight:	approx. 90g
Protection class:	IP67
Housing material:	ABS

Type	Description	PK	Cat. No.
TFX 430	Pt100, without probe	1	**9.908 075**
TFX 430 + TPX 130	Pt100, with probe (length 130mm, 3mm dia., blunt)	1	**9.908 076**
TFX 430 + TPX 230	Pt100, with probe (length 130mm, 3mm dia., pointed)	1	**9.908 077**
TFX 430 + TPX 330	Pt100, with probe (length 190mm, 8mm dia., glass-coated)	1	**9.908 078**

Data Logger EBI-20 T1/EBI-20 TH1/EBI-20-TE1

NEW!

ebro

Applications:
- reliable temperature and temperature/humidity recording
- transport
- storage monitoring
- refrigeration areas and coldrooms

Features:
- excellent price/performance ratio
- waterproof
- visual Alarm
- max/min values on display
- stores 40.000 readings, can be read off at any time
- replaceable battery

Specifications

Measuring range temperature:	-30 to +60°C
Measuring range humidity:	0% to 100% R.H.
Accuracy, temperature:	±0.5°C (-20 to +40°C); ±0.8°C for remaining measuring range
Accuracy, humidity:	±3% R.H. (10 to 90% R.H.)
Resolution temperature:	0.1°C
Resolution humidity:	0.1% R.H.
Memory:	40.000 samples
Sensor:	NTC for temperature/capacitive for humidity
Operating temperature:	-30 to +60°C
Storage temperature:	-40 to +60°C
Measuring period:	1 minute to 24 hours
Measuring mode:	immediate loop measurement, measurement from starting point, start immediately until memory full, start/stop measuring, start when button pressed
Battery:	3V lithium (CR 2450), can be replaced by user
Protection class:	IP 67 (EBI-20 T1); IP 52 (EBI-20 TH1)
Housing :	ABS
Dimensions:	69 x 48 x 22mm
Weight:	approx. 45g

Type	Description	PK	Cat. No.	
EBI-20 T1	Temperature Logger	1	**9.908 069**	1
EBI-20 TH1	Temperature Humidity Logger	1	**9.908 070**	2
EBI-20-TE1	Temperature Logger with external probe	1	**6.228 382**	
EBI-20 T1-Set	Starter-Set (Temperature Logger, evaluation software, Interface)	1	**9.908 073**	3
EBI-20 TH1-Set	Starter-Set (Temperature Humidity Logger, evaluation software, Interface)	1	**9.908 074**	
EBI-20-TE1-Set	Starter-Set (Temperature Logger with external sensor, evaluation software, Interface)	1	**6.240 382**	
EBI-20 AUF	Wall mounting	1	**9.908 079**	

1

9.908 069

2

9.908 070

3

9.908 073

E & OE.

Mini data logger testo 174T

NEW!

Testo

The mini data logger for temperature, testo 174T, is ideal for accompanying transports. Simply positioned close to the goods, e. g. in containers and refrigerated rooms, the data logger monitors temperature continuously, securely and unobtrusively. The free software ComSoft testo 174 allows fast programming of the data logger and easy analysis.

- High data integrity, even with empty battery
- Large measurement data memory
- Watertight in accordance with IP65
- Compact and robust
- Conforms to EN12830
- Issue of alarms via display
- Data transfer to the PC via USB interface
- Reliable temperature measurement for the monitoring of sensitive goods and cold chain during storage and transport

Specification

Probe type:	Internal NTC temperature sensor
Measuring range:	-30 to +70°C
Accuracy:	±0.5°C
Resolution:	0.1°C
Operating temperature:	-30 to +70°C
Storage temperature:	-40 to +70°C
Battery type:	2 x 3V button cell (2 x CR 2032 lithium), can be changed by user
Battery life:	500 days (15 min measuring cycle, +25°C)
Protection class:	IP65
Meas. cycle:	1min - 24h (can be selected)
Memory:	16.000 readings
Software:	can be used with Windows XP, Vista, Win7

Type	Description	PK	Cat. No.	
testo 174T	Mini data logger, 1-channel, incl. wall bracket, battery (2 x CR 2032 Lithium) and calibration protocol	1	**7.626 604**	1
testo 174T set	Mini data logger, 1-channel, incl. USB interface for programming and reading out the logger, wall bracket, battery (2 x CR 2032 lithium) and calibration protocol	1	**7.626 614**	2

1

7.626 604

2

7.626 614

1

6.239 884

2

6.239 883

Mini data logger testo 174H

NEW!

Testo

The mini data logger for temperature and humidity, testo 174H, is ideal for monitoring temperature and humidity sensitive goods in storage. The testo 174H also monitors building climate, continuously, securely and unobtrusively. The free software ComSoft testo 174 allows fast programming of the data logger and easy analysis.

- Humidity sensor with long-term stability
- High data integrity, even with empty battery
- Large measurement data memory
- Display of the current temperature or humidity value
- Large measuring range
- Compact and robust
- Issue of alarms via display
- Data transfer to the PC via USB interface

Specification

Probe type:	NTC temperature sensor and internal capacitive humiditiy sensor
Measuring range:	0 to 100% RH, -20 to +70°C
Accuracy:	±0.5°C, ±3% RH
Resolution:	0.1% RH, 0.1°C
Operating temperature:	-20 to +70°C
Storage temperature:	-40 to +70°C
Battery type:	2 x CR 2032 lithium
Battery life:	1 year (15 min measuring cycle, +25°C)
Protection class:	IP20
Meas. cycle:	1min to 24h (can be selected)
Memory:	16000 readings
Software:	can be used with Windows XP, Vista, Win7

Type	Description	PK	Cat. No.	
testo 174H	Mini data logger, 2-channel, incl. wall bracket, battery (2 x CR 2032 lithium) and calibration protocol	1	**6.239 884**	1
testo 174H-Set	Mini data logger, 2-channel, incl. USB-interface for programming and reading out the logger, wall bracket, battery (2 x CR 2032 lithium) and calibration protocol	1	**6.239 883**	2

3

3 Mechanical stopwatch

Start/stop/reset by single crown, clockwork mechanism, 13 jewels, chrome metal case, measuring range 15 minutes, 1/10 second increments. Supplied with lanyard and soft case, diam. 50mm, 250g (incl. packaging)

Type	PK	Cat. No.
Mechanical stopwatch	1	**9.851 021**

4

4 Stopwatch, mechanical

Amigo. Impact resistant. Unbreakable spring movement. 55mm diameter ABS case. Supplied with 120cm lanyard.

Time intervals secs.	Display mins.	PK	Cat. No.
1 / 10	15	1	**9.262 410**
1 / 5	30	1	**9.262 411**

E & OE.

1 Stopwatch Tristop, mechanical

Separate 1/10 second display magnified 10 times.
Chrome-plated ABS housing with neck cord (120cm), 7 jewel, pin lever movement. 1/5 sec. divisions.
0 to 30 minute face.

Type	PK	Cat. No.
Tristop	1	**9.262 510**

2 Stopwatch, mechanical

Impact resistant, dustproof and water resistant. With diamond-turned metal case. 55mm diameter. Built-in strap ring.

Time intervals secs.	Display mins.	PK	Cat. No.
1 / 5	30	1	**9.262 005**
1 / 10	15	1	**9.262 010**

3 Stopwatch, mechanical

Impact resistant, dustproof, water resistant. With diamond-turned metal case. 55mm diameter. Built-in strap ring.

Time intervals secs.	Display mins.	PK	Cat. No.
1 / 5	30	1	**9.262 205**
1 / 10	15	1	**9.262 210**

4 Stopwatch SL 110

- 1/100 sec. timer up to 40 minutes, 1 sec. timer for 40 minutes up to 24 hours
- lap time function
- time in 12/24-hour-format
- time, month, day, alarm
- snooze function
- splash water resistant
- Incl. 1 x 1.5V button cell SR44
- dimensions: 70 x 60 x 23 mm
- weight: 51g

Type	PK	Cat. No.
SL 110	1	**6.230 554**

1

1 Stopwatch, HiTRAX Run

1/100 seconds,max. 23 hours, 59 minutes, 59 seconds, split time, clock,
date, alarm. Supplied with 3V Lithium long-life battery CR 2032 button cell:
Dimensions: 78 x 58 x 12 mm
Weight: 60g

Type	PK	Cat. No.
HiTRAX Run	1	**9.851 020**

2

2 Stopwatch Stopstar 2, digital

Stopstar 2. ABS housing with lanyard. Temperature range -10 to +55°C. With 7-digit, 7mm high LCD readout.
Start/Stop/Reset, Cumulative (as often as required), Split interval timing (as often as required), dual measurement of two events in quick succession.
Time display: 9hrs, 59mins, 59.99sec.
Battery life approx. 2 to 3 years.
Supplied with button cell (IEC R 6).

Dimensions: 82 x 61 x 28mm
Weight: 70g

Type	PK	Cat. No.
Stopstar 2	1	**9.262 062**

3

3 Stopwatch, digital

Profile LCD.
2 button operation, with 5 event memory, each with split and lap times, 8 mm high LCD readout, 7-figure + 2 event counter, display range: 9hrs, 59mins, 59.99secs. With Start/Stop/Reset, Add./Split/Lap, time functions.

Type	PK	Cat. No.
Stopwatch, digital	1	**9.262 111**

4

4 Stopwatches, Delta E series

Delta E 100
- 65 memories with evaluation, fast run/memory functions
- Large, clear, 2.5-line LCD readout with 7mm high digits
- Battery status indicator
- Function window for Lap, Short-Lap and time. Date indicator and pre-settable split time from the real-time clock
- Mode function button
- Display and memory button.

Delta E 200
Generally as Delta E 100 model, but additionally with:
- Pacer function (1 to 300 strokes/min.)
- Countdown function
- Countdown and stopwatch can be used simultaneously.

Type	Colour	PK	Cat. No.
Delta E 100	black	1	**9.262 520**
Delta E 100	red	1	**9.262 521**
Delta E 200	black	1	**9.262 530**

1 Interval timer with alarm

Benchtop mechanical timer. Suitable for standing, hanging and in addition on the back of two magnets, which allows the fitting of metal parts. Casing and rotary setting knob are white, the dial is black. Running time max. 60mins.

Dimensions (WxDxH): 65 x 35 x 65mm

Type	PK	Cat. No.
Interval timer with alarm	1	**9.260 020**

2 Radio controlled alarm clock

NEW!

Analogue display with pointer, digital display of seconds, alarm with snooze function, backlight, battery 1.5 V AA included.

TFA Dostmann

Dimensions (WxDxH): 152 x 115 x 68mm
Weight: 120g

Type	PK	Cat. No.
Radio controlled alarm clock	1	**9.262 540**

3 Stopclock, analogue, Mesotron

Quartz-accurate timer with large, analogue display. Measuring range: 0 to 60 secs, 0 to 60 mins.
Inner scale 1 to 100 secs/100 mins.
110 mm dia.
Battery life over 18 months with a 1.5 V button cell.
Dimensions (WxDxH): 130 x 40/95 x 175 mm
Weight: 375 g

Type	PK	Cat. No.
Mesotron stopclock	1	**9.262 080**

4 LLG-Electronic Countup Timer

NEW!

Timer and stopwatch, up to 99min. and 59sec., rubber coated, with magnetic attachment, battery LR 44 inclusive, diam. 54 x 16.5mm, approx. 40g

Type	PK	Cat. No.
Electronic Countup Timer	1	**9.260 150**

5 Electronic Timer II

Electronic timer and stopwatch with large display and 10-key setting. Counts up or down from 10 hours to 1 second. With pocket clip, bench stand, magnetic attachment and battery. Overall 70 x 60 x 25mm, weight 95g.

Type	PK	Cat. No.
Timer II	1	**9.851 027**

1

1 Short period timer KT188

Countdown timer from max. 99 mins., 59 secs. A 30 Sec. loud audible alarm sounds when 'zero' reached.
With magnet. Operating instructions in 3 languages.
Supplied with 'SR 44' 1.5 V button cell.

Dimensions (WxDxH): 88 x 12 x 46 mm
Weight: 30 g

Type	PK	Cat. No.
Short period timer KT188	1	**9.260 188**

2

2 Electronic timer clock

Count down/count up timer with loud alarm signal at end of timed period. With Clock, Stopwatch and Memory functions. Timer up to 24 hours. Fittings: magnet, stand and clip. Dimensions (WxDxH): 68mm x 53mm x 20mm, with battery. *Amarell*

Type	PK	Cat. No.
Electronic Timer Clock	1	**9.235 145**

3

3 Countdown timer TR 113

Oregon Scientific

- large, 4 digit, LCD readout
- countdown/countup 99 min. 59 sec.
- measuring cylinders Audible alarm sounds when 'zero' reached
- with pocket clip/bench stand and magnet
- operation manual in 5 languages
- with 1x 1.5V AAA battery
- dimensions: 73 x 66 x 18mm
- weight: 61g

Type	PK	Cat. No.
TR 113	1	**6.700 333**

4

4 3-channel-timer

Indispensable for laboratories. Triple timer with large display. *Dostmann electronic*

- indicates three separate times simultaneously
- stopwatch function
- integrated quartz watch
- supplied with magnet and clip

Technical Specifications

Range: 1sec to 20hours
Operating temperature: 0 to 50°C
Power supply: 1.5V AAA
Dimensions: 88 x 71 x 24mm
Weight: 115g

Type	PK	Cat. No.
3-channel-timer	1	**6.233 690**

E & OE.

1 Laboratory Timer Compact

Compact.
Countdown/Countup.
Digital reading, with alarm and repeat function.
12hr. clock function.
Countdown and countup display: 23hrs, 59mins, 59secs.

Dimensions (WxDxH): 64 x 60 x 16mm
Weight: 40 g

Type	PK	Cat. No.
Compact	1	**9.262 071**

2 Microchronometer with clock

Easy to operate.
Quartz-accurate. With electronic alarm signal.
Adjustable from 1 sec. to 24 hrs.
Memory.

Dimensions (WxDxH): 80 x 45 x 85 mm
Weight: 120 g

Type	PK	Cat. No.
Microchronometer with clock	1	**9.260 187**

3 Stopwatch WB 388

Three separate timers in one instrument. Countdown/countup. Audible alarm sounds when 'zero' reached.
12/24 hour clock. Loud/soft alarm switch. Operating instructions in 3 languages.

Dimensions (WxDxH): 83 x 22 x 70mm
Weight: 80g

Type	PK	Cat. No.
WB 388	1	**9.260 184**

4 Dual Timer TR 118 OS

- Large, 6 digit, LCD readout
- 2 separate timers in one instrument
- Countdown/countup 99 hrs. 59 mins. 59 secs.
- Clock function switch
- Audible alarm sounds when 'zero' reached
- With pocket clip/bench stand and magnet
- Operating instructions in 3 languages.
- Supplied with 'AAA' 1.5V battery

Dimensions (WxDxH): 73 x 66 x 18mm
Weight: 63g

Type	PK	Cat. No.
TR 118 OS	1	**9.260 186**

5 Digi-Clock timer, TR 119 OS

- Large, 6-digit LCD display
- Programmable for up to 23 hrs, 59 mins, 59 secs.
- 1-minute audible alarm when timed period has expired
- Countdown or countup functions
- Time display
- Case incorporates combined bench stand/pocket clip with magnet.
- With instructions in 3 languages

Supplied with 1 x 1.5V AAA battery.
Dimensions (WxDxH): 73 x 70 x 19mm
Weight: 50g

Type	PK	Cat. No.
TR 119 OS	1	**9.260 189**

1

1 Microchronometer, TR 112 OS

- 4-figure LCD time readout for minutes and seconds
- Programmable for up to 99 mins, 59 secs.
- 30-second audible alarm when timed period has expired
- Countdown
- Timer memory function
- Case incorporates combined bench stand/pocket clip with magnet.
- With instructions in 3 languages
- Supplied with 1 x 1.5V AAA battery.

Dimensions (WxDxH): 66 x 56 x 18mm
Weight: 45g

Type	PK	Cat. No.
TR 112 OS	1	**9.260 181**

2

2 Benchtop timers, countdown/countup, Prisma series

Prisma 200.
- ABS plastic case
- Large, easy to read LCD display
- Stopwatch function
- Normal time display
- Selectable time resolution 999mins., 59 secs. or 9 hrs., 59 mins., 59 secs., 1/10 sec.
- Loud audible alarm
- 2 channels with start/stop operation, either separately or together.

Prisma 400.
Generally as Prisma 200, but additionally with:
- Sequence programming
- Function window
- 4 channels.

Type	Colour	PK	Cat. No.
Prisma 200	white	1	**9.260 178**
Prisma 400	white	1	**9.260 179**

3

3 Radio alarm clock RM 912 BOS

NEW!

- time adjustment and synchronization via radio signal DCF-77 for Central European time zones only
- with 24 hour display with hh: mm: ss
- date display: day/month
- weekday display in choice of 4 languages
- second time zone function
- time and date manually adjustable
- radio signal strength display in 3 stages
- backlighting by pressing on the snooze button (5 sec.) and during the alarm (5 sec.)
- alarm function
- snooze function (8 mins.)
- 2-minute crescendo alarm
- easy adjustment "24h Alarm off" and "Permanent On/Off"
- two independent alarm times can be set
- battery change display
- supplied with 2 x 1.5V 'AAA' batteries.
- colour: silver-blue

Dimensions (WxDxH): 85 x 47 x 107 mm
Weight: 160 g

Type	PK	Cat. No.
RM 912 BOS	1	**6.237 724**

4

4 Radio controlled wall clock

- Highest precision radio-controlled clock
- Analogue display with second hand
- Digital display of date
- Large dial
- Ideal for home, office, waiting room, lobby or entrance hall and as a gift
- Ø 300mm
- Battery included 1.5 V AA

Type	PK	Cat. No.
Radio controlled wall clock	1	**9.851 019**

1 Time switches

1

With earthed plug. *Theben*

Timer 26
- Daily programme adjustable in 15 min. segments

Eltimo 020 S
- Switch-on intervals: 10 to 120 min.
- Switching capacity 3500 W
- Power reserve 500 h
- Shortest switching time: 1 min
- Digital plug-in timer with weekly program

Type	PK	Cat. No.
Timer 26	1	**9.000 030**
Eltimo 020 S	1	**9.000 031**

2 Thermohygrometer, analogue

2

Synthetic hair, spun metal case with dial and brass hanging ring. *TFA Dostmann*

Measuring range

Relative humidity:	0 to 100%
Temperature:	-15 to 55°C
Wieght:	105g

Dia. mm	PK	Cat. No.
100	1	**9.726 403**

3 Thermohygrometer, Klimatherm

3

Spun metal case with dial, separate humidity and temperature indicators, and brass hanging ring. *TFA Dostmann*

Measuring range

Relative humidity:	15 to 100%
Temperature:	0 to 40°C
Weight:	90g

Dia. mm	PK	Cat. No.
100	1	**9.726 404**

4 Thermohygrometer

4

Universal application thermohygrometer with outdoor probe and stand/attachment device. Accessory wall mounting (screws or adhesive tape) are available on request. *Amarell*

Specifications

Measuring range:	-50 to +70 x 0.1°C switchable to °F 20 to 90 x 1% R.H.
Dimensions (WxDxH):	approx. 65mm x 20mm x 97mm

Type	PK	Cat. No.
Thermohygrometer	1	**9.235 135**

1

1 Thermohygrometer, TA 100

TFA Dostmann

- very fast humidity sensor
- dewpoint and max./min. function
- °C/°F-switchable
- Hi-Lo alarm with red warning LED

Specifications

Temperature	
Measuring range:	-40 to +70°C
Display resolution:	0.1°C
Accuracy:	±0.5°C (0 to 60°C) remaining range ±1°C
Humidity	
Measuring range:	0 to 99% R.H.
Display resolution:	0.1%
Accuracy:	±5% (20 to 80%)
Working temperature:	-40 to +70°C
Batteries:	2 x 1.5 Volt AAA
Dimensions:	105 x 105 x 44mm
Weight:	150g (incl. packaging)

Type	PK	Cat. No.
TA 100	1	**9.726 405**

2

2 Thermohygrometers, testo 608-H1/-H2

Testo

The standard testo 608-H1 hygrometer continuously measures humidity, temperaure and dew point. The testo 608-H2 precision alarm-hygrometer includes an LED alarm lamp, indicating the set point has been reached.

- With dew point calculation td and max/min display
- Humidity sensor is not affected by condensation
- Battery monitor (batteries included)

Specifications:	testo 608-H1/testo 608-H2
Temperature:	
Measuring range:	0 to +50°C/-10 to +70°C
Accuracy (±1 Digit):	±0.5°C (at +25°C)
Resolution:	0.1°C
Humidity	
Measuring range:	+10 to +95%R.H./+2 to +98%R.H.
Accuracy (±1 Digit):	±3%R.H./±2%R.H.
Resolution:	0.1%R.H.
Dewpoint	
Measuring range:	-20 to +50°C td/-40 to +70°C td
Operating temperature:	0 to +50°C/-10 to +70°C
Storage temperature:	-40 to +70°C
Dimensions (WxDxH):	120 x 40 x 89mm
Weight:	168g

Type	PK	Cat. No.
testo 608-H1	1	**9.726 964**
testo 608-H2	1	**9.726 965**

We can supply this manufactorer's whole product range !

partner of the LLG Lab Logistics Group

testo

E & OE.

1 Thermohygrometer testo 622

NEW!

1

Testo

In addition to temperature and humidity, the testo 622 also measures barometric pressure. The large, clear display indicates current readings, as well as the date and time. It thus provides all important values at a glance.

Specifications:

Meas. units:	Temperature: °C,°F Humidity: %rH, td, wb Pressure: hPa, mbar, kPa, in Hg, in H_2O, psi
Meas. range:	-10 to +60°C 0 to 100%RH 300 to 1200hPa
Resolution:	0.1°C 0.1% RH 0.1hPa
Accuracy ±1 digit:	±0.4°C ±2%RH at +25°C (10 to 90%RH) ±3%RH (rest of range) ±3hPA
Display:	LCD
Measuring rate:	10secs
Alarm function:	LED alarm for too low or too high temperatur and/or humidity values Calibration reminder
Storage temp.:	-20 to +60°C
Oper. temp:	-10 to +60°C
Battery type:	4 x AA
Battery life:	12 months
Dimensions (L x W x H):	185 x 105 x 36mm
Weight:	240g (without batteries)

Type	PK	Cat. No.
testo 622	1	**9.718 667**

2 Data logger LOG100 for temperature and LOG 110 for humidity

NEW!

2

Dostmann electronic

Large display for actual value, battery status display, easy to use software. Perfect designed instrument for transportation or storage.

- quality surveillance in laboratories, at the production or in the storage
- ambient conditions in manufacturing facilities
- monitoring from storages after HACCP
- ambient conditions in power plants
- monitoring of fridges for the pharma industry

Please order Software with USB-cabel separately (9.726 413)

Specifications

Temperature

Measuring range:	-30 to +70°C
Accuracy:	0.1°C
Precision:	±0.5°C (0 to +40°C), otherwise ±0.7°C

Humidity (Art. No. 9.726 412)

Measuring range:	0 to 99% R.H.
Resolution:	0.1% R.H.
Accuracy:	±3% R.H.
Housing:	Plastic (ABS)
Battery:	1 x CR2032 3V
Dimensions:	92 x 55 x 21mm
Weight:	95g (incl. packaging)

Type	PK	Cat. No.
Temperature data logger LOG 100	1	**9.726 411**
Temperature / Humidity data logger LOG 110	1	**9.726 412**
Windows Software DE-Graph for LOG 100 and LOG 110 with USB-cabel	1	**9.726 413**
external temperature sensor, 3 x 40 mm, -50 to +120°C with 3 m wire	1	**9.726 416**
external temperature sensor, 3 x 40 mm, -50 to +120°C with 8 m wire	1	**9.726 417**

1

1 Thermohygrometers testo 623

NEW!

Testo

- The new testo 623 thermohygrometer displays current and past temperature and humidity values on a large, clear display.
- Histogram shows current and recent historical temperature or humidity values
- Large, highly legible display
- Curve display of the last 90 days

Specifications:

Meas. units:	Temperature: °C, °F Humidity: %r.F., td, wb
Meas. range:	-10 to +60°C 0 to 100% RH
Resolution:	0.1°C 0.1% RH
Accuracy ±1 digit:	±0.4°C ±2% RH at +25°C (10 to 90% RH) ±3% RH (rest of range) Time: ±3 minutes/year
Display:	LCD
Measuring rate:	20 secs
Alarm function:	LED alarm for too low or too high temperatur and/or humidity values Calibration reminder
Storage temp.:	-20 to +60°C
Oper. temp:	-10 to +60°C
Battery type:	4 x AA
Battery life:	12 months
Dimensions (L x W x H):	185 x 105 x 36mm
Weight:	240g (without batteries)

Type	PK	Cat. No.
testo 623	1	**9.718 668**

E & OE.

1

1 Precision handheld instruments P700 series

NEW!

For temperature, moisture and airflow.
For highly accurate temperature measurements with USB PC online interface.
(Optional: Windows SmartGraph software for graphical and tabular documentation, etc). Integral probe calibration for sensor tolerance compensation. Min.- Max.- Hold- and AVG- functions. The large LCD shows two measurements synchronously, even temperature differences can be displayed (P705, P755, P755-Log, P770).

Specifications
General (all models):
USB interface, Max-Min memory, Hold function, true average calculation over a freely selectable period, Auto-off function, measured quantities can be freely assigned to instrument channels, comprehensive calibration options (selectable 1-point, 2-point or 3-point calibration), large display with bar graph for simultaneous display of 2 measured values

P700/P705:
1/2 measurement channels (Pt100 4-wire probe, thermocouples type J, K, L, N, T, R, S), measurement ranges and accuracies: Pt100:-200 to +850°C (±0.1°C -100 to +200°C, otherwise ±0.1% of measurement value) thermocouples, DIN types (-200 to +1760°C)

P710/P715:
1/2 measurement channels (Pt100 4-wire probe, thermocouples type K, J, L, N, T), measurement ranges and accuracies: Pt100: -200 to +1370°C (±0.2°C -40 to +200°C, ±0.5 to 1000°C otherwise ±0.1°C of measurement value) Thermocouples acc. to EN 60584-1

P750/P755/P755-Log:
1/2 measurement channels (Pt100 4-wire probe, thermocouples type J, K, L, N, T, R, S, moisture, flow), measurement ranges and accuracies: Pt100: -200 to +850°C (±0.03°C -50 to +200°C, ±0.05°C -200 to +200°C, otherwise ±0.05% of measurement value), thermocouples, DIN type (types J, K, L, N, T 0 to 200°C, ±0.3°C, +200 to +1000°C ±1.0°C, otherwise ±.5°C;
type R, S ±1.0°C +0.1% of measurement value) humidity 0 to 100% R.H. (±0.5%R.H.), flow 0 to 40 m/s (±0.5% of measurement value +1.0% of final value)

P770:
2 measurement channels (Pt100, thermocouples type J, K, L, N, T, R, S, moisture, flow), measurement ranges and accuracies: Pt100: -200 to +850°C (±0.1°C -100 to +200°C, otherwise ±0.1% of measurement value) thermocouples, DIN types, humidity 0 to 100%R.H. (±0.5%R.H.), flow 0 to 40 m/s (±0.5% of measurement value)

Dimensions (L x W x D)/ weight: 200 x 85 x 40mm/300g

Type	Description	PK	Cat. No.
P700	1 channel, Pt100	1	**9.852 000**
P705	2 channel, Pt100	1	**9.852 001**
P710	1 channel	1	**9.852 002**
P715	2 channel	1	**9.852 003**
P750	1 channel, Pt100, moisture, dew piont, flow	1	**9.852 004**
P755	2 channel, Pt100, moisture, dew point, flow	1	**9.852 005**
P755-Log	2 channel, Pt100, moisture, dew point, flow, with datalogger for 6000 values	1	**9.852 006**
P770	2 channel, Pt100, moisture, dew point, flow	1	**9.852 007**
P770-Log	2 channel, Pt100, moisture, dew point, flow, with datalogger for 6000 values	1	**9.852 008**

Accessories for hand-held meters Serie P700

NEW!

Description	PK	Cat. No.	
Immersion probe Pt100, -50 to +350°C, Cl. B, 150x3mm	1	**9.851 935**	1
Immersion probe Pt100, -50 to +350°C, Cl. B, 300x3mm	1	**9.851 936**	
Immersion probe Pt100, -200 to +450°C, ±0.03°C, 150x3mm	1	**9.851 937**	
Immersion probe Pt100, -200 to +450°C, ±0.03°C, 300x3mm	1	**9.851 938**	
Insertion probe Pt100, -200 to +500°C, Cl. B, 150x4mm	1	**9.851 948**	
Immersion probe NiCr-Ni/Type K, -40°C to +1100°C, Cl. 1, 300x1.5mm	1	**9.851 949**	
Surface probe NiCr-Ni/Type K, T90 3 sec., max. +400°C, 120x6mm	1	**9.851 957**	2
Temp. / relative Humidity -40 to 80°C / 0 to 100%, 120x20mm	1	**9.851 954**	3
Airflow Turbine probe 0 to 20m/s, diam. 22 x 28mm, 150mm lg.	1	**9.851 955**	4
Software DE-Graph for 95 / 98 / 2000 / NT / Vista	1	**9.851 925**	5
Service case suitable up to 3 probes & accessories	1	**9.851 924**	
PC-Cable for USB port	1	**6.242 171**	
Power supply 230 V	1	**9.851 959**	

1

9.851 935

2

9.851 957

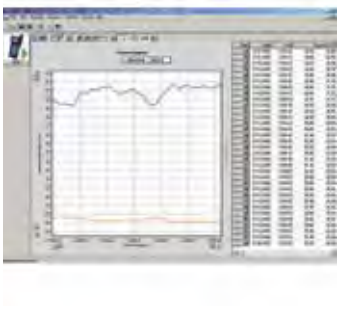
3

9.851 954

4

9.851 955

5



9.851 925

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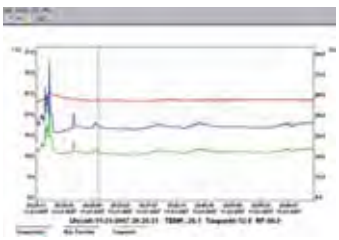

6 7 8 LOG32 Temperature/Humidity logger

- Can store up to 32000 measurements (16000 per sensor)
- Freely selectable measuring intervals from 2 seconds up to 24 hours
- battery life time approx. 2 years
- status indication using 2 x LED lamps
- built-in USB interface
- WindowsTM-compatible software (german/english/french) included
- wall mounting

Applications:
Offers the best solution to record ambient humidity and temperature data of transport containers, storage, laboratory, production plant, greenhouses etc.
- quality control in laboratory, production or warehouse facilities
- monitoring warehouse and cooled transport according to HACCP
- ambient temp in power plants
- monitoring medical refrigeration equipment

Specifications

Temperature

Measuring range:	-40 to +70°C
Accuracy:	0.1°C
Precision:	±1.0°C (-20 to +50°C), otherwise ±2.0°C

Humidity

Measuring range:	0 to 100%R.H.
Resolution:	0.1% R.H.
Accuracy:	±3% R.H.
Housing:	Plastic (ABS)
Battery:	1 x 3.6V ½ AA Lithium
Dimensions:	130 x 30 x 25mm
Weight:	117g (incl. packaging)

Type	PK	Cat. No.
LOG32	1	**9.726 407**

E & OE.

1

1 CO_2 Meter, Air CO_2ntrol 3000

- Large display
- Measuring range: 0 to 3000ppm
- Incl. Power supply for 230 VAC
- 24-hour data logger
- Adjustable Alarm
- C°/°F-selectable
- Relay output for ventilation control

Applications:
Ideal for monitoring the environment (CO_2 concentration) in public buildings, such as universities,schools
- Hospitals
- Education
- Office
- Production plants
- Public Facilities

Specifications

CO_2

Range:	0 up to 3000ppm
Resolution:	1ppm (0 up to 1000ppm); 5ppm (1000 up to 2000ppm); 10ppm (<2000ppm)
Accuracy:	50ppm or 5%, larger value applies

Temperature

Range:	0 up to +50°C
Resolution:	0.1°C
Accuracy:	±1% or 1°C, larger value applies
Display:	7 segment LCD(twin-lined)
Housing:	Plastic (ABS)
Supply requirements:	230 VAC adapter or 4 x AA Batteries
Dimensions:	165 x 80 x 23mm
Weight:	600g (incl. packaging)

Type	PK	Cat. No.
Air CO_2ntrol 3000	1	**9.726 408**

2 Aspiration psychrometer

Portable, robust and handy standard measuring instrument for psychrometric measurement of air humidity. Suitable as reference device. *Thies*

Measuring range:	-10 to +60°C
Increments:	0.2°C
Aspirator:	Spring motor
Dimensions (Ø x H):	90 x 420mm

Type	PK	Cat. No.
Aspiration psychrometer	1	**9.726 525**

2

1

1 Hygrothermograph with spring movement or quartz clock

White plastic-coated metal casing, with high quality bimetallic temperature measuring system. *Thies*

Spring movement type:

Measuring range:	0 to +40°C
	0 to 100% R.H.
Dimensions(HxTxB):	280 x 140 x 260mm
Recording:	7 days/24 hrs selectable
Humidity measuring element:	"K"

Quartz clock type:

Measuring range:	-10 to +50°C/10 to 100% R.H.
Operation period:	1, 7 and 31 days selectable

Other measuring ranges are available on request.

Type	PK	Cat. No.
Spring clock	1	**9.726 560**
Quartz clock	1	**9.726 531**
Quartz clock, with plastic hood	1	**9.726 533**

2

2 Weather station, Diva Plus

- transmission of outdoor temperature and humidity via up to 3 transmitters (max. 100m) *TFA Dostmann*
- indication of indoor temperature and humidity,
- Max./min. function
- weather forecast, tendency of atmospheric pressure, bar graph indication of atmospheric pressure of the last 24 hours
- radio controlled clock with date, time zone ±12 hrs
- interchangeable °C/°F display
- wall or table mounting

Supplied with: Outdoor temperature and humidity transmitter, batteries 5 x 1.5V AA.

Specifications

Temperature range	
outdoors:	-40 to +60°C (-14 to 140°F)
indoors:	-10 to +60°C (-4 to 140°F)
Humidity:	1 to 99%
Dimensions basis station:	180 x 100 x 35mm
Dimensions transmitter:	160 x 43 x 28mm
Weight:	520g

Type	PK	Cat. No.
Diva Plus	1	**9.726 410**

3

3 Weather info center, Meteotime Star

NEW!

Weather info center "meteotime star" weather forecast via DCF signal made by professional meteorologists for 470 cities (90 meteorological weather regions) in Europe, 60 regions with 4 days forecast (today + 3 days), 30 regions with 2 days forecast, separated into day and night with expected highest and lowest temperatures, for the current day text display for critical weather situations, rain/snow/hail probability, wind velocity and direction, time for sun rising and setting, wireless transmission of outdoor temperature and humidity via transmitter (max. 30m), indication of indoor temperature and humidity, max.- min.-function, radio controlled clock with date, for hanging or standing, equipment: outdoor temperature and humidity transmitter, batteries 2 x 1.5V AA display station, 2 x 1.5V AA transmitter. *TFA Dostmann*

Specifications

Temperature range	
outdoors:	-40 to +70°C
indoors:	0 to +60°C
Humidity:	1 to 99%
Dimensions basis station:	132 x 120 x 39mm
Dimensions transmitter:	101 x 56 x 24mm
Weight:	570g

Type	PK	Cat. No.
Meteotime Star	1	**9.726 420**

1 Wireless weather station with photo viewer, Viewer

NEW!

TFA Dostmann

1

Colour monitor 7" optionally as photo viewer, weather station with weather icons, graphics and texts, weather station with photo or monthly calendar with photo digital viewer with zoom, rotation, slide show mode (with 13 variable transition effects, slide duration and display format), weather station with transmission of outdoor temperature and humidity via up to 3 transmitters (868 MHz, max. 30m), indication of indoor and outdoor temperature and humidity with trend pointers, weather forecast with weather symbols, absolute atmospheric pressure with tendency and bar graph indication of the last 6 hours, radio controlled clock with alarm and date, moon phase, indication of dew point and heat index (temperature sensitivity in combination with humidity) for indoor and outdoor, temperature range reversible °C/°F, simple intuitive operation with IR remote control or on the unit, languages: English, German, French, supported image files: JPEG, memory devices: SD, MMC USB Memory Stick (up to 32 GB), on/off timer for saving energy, for wall mounting or table standing with stand, equipment: power adapter, outdoor temperature and humidity transmitter with 2 x 1.5 V AAA batteries, IR remote control with CR2025 button cell battery.

Specifications

Temperature range	
outdoors:	-20 to +60°C
indoors:	0 to +50°C
Humidity:	20 to 99%
Dimensions basis station:	161 x 235 x 41mm
Dimensions transmitter:	91 x 66 x 33mm
Weight:	1200g

Type	PK	Cat. No.
Viewer	1	**9.726 414**

2 Weather info center, Nexus

NEW!

TFA Dostmann

2

Transmission of outdoor values wireless (max. 100m), display of outdoor temperature and humidity, rainfall quantity, wind velocity and direction, indoor temperature and humidity with comfort level indicator, absolute and relative atmospheric pressure with 24 hours history, weather forecast and tendency of atmospheric pressure, bar graph indication of atmospheric pressure, temperature or humidity for the last 24 hours, calculation of Windchill factor and dew point, max.-min.-function, programmable alarm functions for certain weather conditions like temperature alarm, storm warning, radio controlled clock with different alarms and snooze function, display of date and weekday (6 languages), time of sun rising and setting, indication of moon phase, data memory for 3000 weather records, PC- Interface with analysis software package, LED Backlight with light sensor (in continuous operation with power adapter), measuring range temperature reversible °C/°F, for hanging or standing, equipment: thermo-hygro-sensor, wind sensor (solar), rain sensor, CD-ROM (English/German), USB cable, power adapter 7.5 V AC/DC, batteries 4 x 1.5 V AA display station, 2 x 1.5 V AA thermo-hygro-sensor, rechargeable battery wind sensor, 2 x 1.5 V AA rain sensor, expandable up to 5 thermo-hygro-sensors.

Specifications

Temperature range	
outdoors:	-40 to +80°C
indoors:	-10 to +60°C
Humidity:	1 to 99%
Dimensions basis station:	220 x 165 x 32mm
Weight:	2670g

Type	PK	Cat. No.
Nexus	1	**9.726 421**

1

1 Moisture meter HumidCheck Mini

Easy to use: remove protection cap, press measuring button and insert measuring electrodes in object.

- scale for construction materials and wood
- automatic instrument test
- with clip

Applications:
Used to measure the moisture level in sawn timber and construction materials. Suitable for field work.

Specifications

Measuring principle:	electrical resistance
Measuring range wood:	6 to 42%
Accuracy wood:	<30% ±2%; >30% ±4%
Measuring construction materials:	0.2 to 2.0%
Accuracy construction materials:	<1.4% ±0.1%; >1.4% ±0.2%
Temperature range:	0 to 40°C (32 to 104°F)
Batteries:	4 x coin cell (LR44)
Housing:	impact-resistant plastic
Dimensions:	80 x 40 x 20mm
Weight:	80g (incl. packaging)

Type	PK	Cat. No.
HumidCheck Mini	1	**9.726 406**

2

2 Pycnometers, calibrated, Borosilicate glass 3.3.

NEW!

Isolab

DIN 12797. Individually calibrated to contain (In) to 0.001ml. Net volume capacity is engraved on the body. Each bottle is calibrated together with its stopper. In order to differentiate easily, both the body and the stopper have the same code numbers printed on themselves.

Capacity ml	PK	Cat. No.
5	1	**4.008 327**
10	1	**6.241 602**
25	1	**4.008 328**
50	1	**6.241 603**
100	1	**4.008 329**

3

3 Pycnometers, BLAUBRAND®, Borosilicate glass 3.3.

BRAND

DIN ISO 3507, guy-lussac type . Including individual certificate. Adjusted.
With NS10/19 capillary stopper. Stopper top ground and polished. Inscription in highly contrasting blue enamel. The volume in cm³ is specified to a precision of 3 decimal places. Calibrated to contain. Every pycnometer is calibrated with its own stopper; hence, stoppers are not interchangeable. Each bottle and its stopper is marked with an unique matching identification number.

Nom. capacity cm³	PK	Cat. No.
5	1	**9.277 305**
10	1	**9.277 310**
25	1	**9.277 325**
50	1	**9.277 350**
100	1	**9.277 400**

E & OE.

1 Pycnometers, BLAUBRAND®, with thermometer and side capillary, Borosilicate glass 3.3.

DIN ISO 3507, guy-lussac type . Including individual certificate. Adjusted. With thermometer and side capillary. Calibrated to contain. The volume in cm³ is specified to a precision of 3 decimal places. Inscription in highly contrasting blue enamel. Thermometer with translucent glass scale, with conical ground joint 10/19. Measuring range 10 to 35°C (0.2°C increments), mercury filled. Side capillary with conical ground joint cap 7/16. Every pycnometer is calibrated with its own stopper; hence, stoppers are not interchangeable. Each bottle and its stopper is marked with an unique matching identification number. *BRAND*

Nom. capacity cm³	PK	Cat. No.
10	1	**9.277 410**
25	1	**9.277 425**
50	1	**9.277 450**
100	1	**9.277 500**

1

2 LLG-Precison-Hydrometer

NEW!

Saccharometers
Measuring range, graduation: 0.1% mas, with thermometer: 0 to +35°C, graduation: 1°C, calibrated at 20°C. Filling: Hg. Overall length: 350mm. Optional available with official calibration certificate, works certificate or DKD-calibation certificate.
Please specify with order.

Type	Measuring range % mas	PK	Cat. No.
1	0 - 10	1	**9.236 770**
2	10 - 20	1	**9.236 771**
3	20 - 30	1	**9.236 772**
4	30 - 40	1	**9.236 773**
5	40 - 50	1	**9.236 774**
6	50 - 60	1	**9.236 775**
7	60 - 70	1	**9.236 776**
8	70 - 80	1	**9.236 777**
9	80 - 90	1	**9.236 778**

2

3 LLG-Precison-Hydrometers

NEW!

Alcoholmeters
Measuring range, graduation: 0.1% vol, with thermometer 0 to +30°C, graduation: 0.5°C, calibrated at 20°C. Filling: blue. Overall length: 380mm
Optional available with official calibration certificate, works certificate or DKD-calibation certificate.
Please specify with order.

Type	Measuring range % vol	PK	Cat. No.
1	0 - 10	1	**9.236 810**
2	10 - 20	1	**9.236 811**
3	20 - 30	1	**9.236 812**
4	30 - 40	1	**9.236 813**
5	40 - 50	1	**9.236 814**
6	50 - 60	1	**9.236 815**
7	60 - 70	1	**9.236 816**
8	70 - 80	1	**9.236 817**
9	80 - 90	1	**9.236 818**
10	90 - 100	1	**9.236 819**

3

1 Lactodensimeter

Measuring range, graduation 0.0005g/cm³.
Optional available with official calibration certificate, works certificate or DKD-calibation certificate.
Please specify with order.

Type	Measuring range g/cm³	Graduations °C	Measuring range Thermometer °C	Charge	Overall length mm	PK	Cat. No.
0	1015 - 1040	1	0 to +35	blue	260	1	**9.236 830**
0	1025 - 1036	1	+5 to +40	Hg	370	1	**9.236 831**
1	1020 - 1040	0.5	+10 to +30	Hg	320	1	**9.236 832**
2	1025 - 1036	1	+5 to +40	Hg	370	1	**9.236 833**
3	1020 - 1040	without	without	without	230	1	**9.236 834**
0	1015 - 1040	without	without	without	210	1	**9.236 835**
1	1015 - 1040	1	0 to +40	blue	270	1	**9.236 836**
0	1020 - 1040	1	0 to +35	Hg	250	1	**9.236 837**

1

2

2 Hydrometers, relative density (S.G.)

Shot poised. Without thermometer.

Measuring range g / ml	Sub-divisions g / ml	Length mm	PK	Cat. No.
0.600 - 0.800	0.002	300	1	**9.004 006**
0.800 - 1.000	0.002	300	1	**9.004 008**
1.000 - 1.200	0.002	300	1	**9.004 010**
1.200 - 1.400	0.002	300	1	**9.004 012**
1.400 - 1.600	0.002	300	1	**9.004 014**
1.600 - 1.800	0.002	300	1	**9.004 016**
0.700 - 1.000	0.005	300	1	**9.004 057**
1.000 - 1.500	0.005	300	1	**9.004 060**
1.500 - 2.000	0.005	300	1	**9.004 065**

Further models availlable on request.

1 Hydrometers, density, M 100 series

DIN 12791 (and BS718). Adjustable. M100 series. Shot poised.
Without thermometer. Reference temperature: +20°C.

Measuring range g / ml	Sub-divisions g / ml	Length mm	PK	Cat. No.
0.800 - 0.900	0.002	250	1	**9.004 108**
0.900 - 1.000	0.002	250	1	**9.004 109**
1.000 - 1.100	0.002	250	1	**9.004 110**
1.100 - 1.200	0.002	250	1	**9.004 111**
1.200 - 1.300	0.002	250	1	**9.004 112**
1.300 - 1.400	0.002	250	1	**9.004 113**
1.400 - 1.500	0.002	250	1	**9.004 114**
1.500 - 1.600	0.002	250	1	**9.004 115**

Further models availllable on request.

2 Hydrometers, density

Shot poised. Without thermometer. Reference temperature: +20°C.

Measuring range g / ml	Sub-divisions g / ml	Length mm	PK	Cat. No.
0,760 - 0,820	0.001	160	1	**9.004 153**
0,820 - 0,880	0.001	160	1	**9.004 154**
0,880 - 0,940	0.001	160	1	**9.004 155**
0,940 - 1,000	0.001	160	1	**9.004 156**
1,000 - 1,060	0.001	160	1	**9.004 157**
1,060 - 1,120	0.001	160	1	**9.004 158**
1,120 - 1,180	0.001	160	1	**9.004 159**
1,180 - 1,240	0.001	160	1	**9.004 160**
1,240 - 1,300	0.001	160	1	**9.004 161**
1,300 - 1,360	0.001	160	1	**9.004 162**
1,360 - 1,420	0.001	160	1	**9.004 163**

Further models availllable on request.

3 Hydrometers, Baumé

Baumé type. Shot poised. Without thermometer. Reference temperature: +15°C.

Measuring range Bé	Sub-divisions Bé	Length mm	PK	Cat. No.
0 - 5	0,1	260	1	**9.004 305**
0 - 10	1,0	220	1	**9.004 310**
0 - 15	1,0	230	1	**9.004 315**
0 - 20	1,0	230	1	**9.004 320**
0 - 30	1,0	250	1	**9.004 330**
0 - 40	1,0	250	1	**9.004 340**
0 - 50	1,0	280	1	**9.004 350**
0 - 70	1,0	300	1	**9.004 370**

Further models availllable on request.

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1 Hydrometers, mineral oil

With -10 to +60°C thermometer.
Adjustable.
Reference temperature: +15°C.

Measuring range g / ml	Sub-divisions g / ml	Length mm	PK	Cat. No.
0,610 - 0,700	0,001	390	1	**9.004 561**
0,680 - 0,770	0,001	390	1	**9.004 568**
0,750 - 0,840	0,001	390	1	**9.004 575**
0,820 - 0,910	0,001	390	1	**9.004 582**
0,890 - 0,990	0,001	390	1	**9.004 589**

2

2 Hydrometers, Dr. Ammer

Dr. Ammer type.
For testing boiler feedwater.
With integral thermometer and temperature correction.
Reference temperature +20°C.

Measuring range Bé	Length mm	PK	Cat. No.
-1 / 0 / +1	290	1	**9.004 601**
-1 / 0 / +2	290	1	**9.004 602**

3

3 Hydrometers, lime water $Ca(OH)_2$

For lime water $Ca(OH)_2$.
Without thermometer.
Reference temperature: +20°C.

Measuring range	Length mm	PK	Cat. No.
0 - 340 g/l	300	1	**9.004 640**

E & OE.

1 Salinometers, Bischoff type

For common salt.
Without thermometer.

Measuring range g / ml	Length mm	PK	Cat. No.
0 - 27	240	1	**9.004 650**

2 Hydrometers for special applications

Without thermometer.
Total length: 250 to 280mm

For	Measuring range	PK	Cat. No.
Ammonia	0 to 35 x 0.5 %	1	**9.004 651**
Sodium hydroxide	0 to 27 x 1 %	1	**9.004 652**
Sodium hydroxide	0 to 10 x 0.1 %	1	**9.004 653**
Nitric acid	0 to 47 x 1 %	1	**9.004 654**
Hydrochloric acid	0 to 39 x 1 %	1	**9.004 655**
Sulphuric acid	0 to 45 x 1 %	1	**9.004 656**
Hydrogen peroxide	0 to 30 x 1 %	1	**9.004 657**

3 Alcoholometer

Richter-Tralles type.
0 to 100% at reference temperature: +20°C.
Without thermometer.

Type	PK	Cat. No.
Alcoholometer	1	**9.004 400**

1 Hydrometer jars

PP. *BRAND*
With overflow chamber so that hydrometer can be read when cylinder is completely full.
Impact resistant and flexible. With spout.

Capacity ml	Int. dia. mm	Height mm	PK	Cat. No.
500	50	350	1	**9.004 900**

2 Hydrometer jars

Glass, with spout and base.

Height mm	Dia. mm	PK	Cat. No.
150	38	1	**9.950 034**
200	38	1	**9.950 035**
200	50	1	**9.950 036**
250	50	1	**9.950 037**
300	50	1	**9.950 038**
350	63	1	**9.950 039**

3 Battery hydrometer

Battery acid tester 1.10 to 1.30.
Boxed complete with glass tube, rubber bulb and hydrometer.

Type	PK	Cat. No.
Battery hydrometer	1	**9.004 710**

4 Dipping flow cups Frikmar

Aluminium. DIN 53211 viscometer.
For all types of liquid chemicals, varnishes, fluid enamels, gravure printing inks
and leather dyes, oils, fats, foodstuffs etc.
With 4mm flow nozzle. Accessory 2, 3, 5, 6, 7 and 8mm nozzles are available on request.

Type	PK	Cat. No.
Dipping flow cups Frikmar	1	**9.149 898**

E & OE.

Flow cups

DIN 53211.
With fixed nozzle, 4mm.
(Also available with 2, 3, 5, 6, 7 and 8mm nozzles - details on request)

Type	PK	Cat. No.
Flow cups	1	**9.149 862**

1 Flow cups, without nozzles

1

For 2, 3, 4, 5, 6, 7 and 8mm outlet detachable nozzles.

Type	PK	Cat. No.
Flow cups	1	**9.149 860**

Flow cup nozzles

Flow cup nozzles to DIN 53211. For flow cup 9.149 860.

Int. bore dia. mm	PK	Cat. No.
2	1	**9.149 872**
3	1	**9.149 873**
4	1	**9.149 874**
5	1	**9.149 875**
6	1	**9.149 876**
7	1	**9.149 877**
8	1	**9.149 878**

2 Flow cup stand, adjustable

2

With adjustable cup holder. For 9.149 862 and 9.149 860.

Type	PK	Cat. No.
Flow cup stand, adjustable	1	**9.149 887**

3 Flow cup stand, ring stand

3

Stainless steel.

Type	PK	Cat. No.
Flow cup stand, ring stand	1	**9.149 881**

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1 Viscometer SV-10/SV-100

A&D Inst.

Sine-wave Vibro Viscometer SV-10/SV-100 measures viscosity by detecting the driving electric current necessary to resonate the two sensor plates at constant frequency of 30Hz and amplitude of less than 1mm.
- wide range of measurements
- temperature measurements: 0 to 160°C
- high accuracy: ±1% of measured value
- small sample size of 35ml and optional 10ml sample vial or 13ml quartz glass vial
- easy cleaning of stainless steel sensor plates and temperature sensor (all gold plated)
- WinCT-Viscosity is software to import the measured data of viscosity and temperature to a PC and graphically display the changes in real-time for your analysis
- easy calibration with distilled water (SV-10)
- sample heating or cooling with "Water Jacket"
- approved measuring method acc. to JCSS (Japan Calibration Service Systems)

Type	Measuring range	Unit	PK	Cat. No.
SV-10	0.3 to 10000 mPAs	mPAs, Pas, cP, P	1	**9.901 560**
SV-100	1 to 100 Pas	Pas, P	1	**9.901 561**

2

2 Viscometers, glass, kinematic, Ubbelohde

SI Analytics GmbH

To ISO/DIS 3105. DIN 51562. BS 188. NF T 60 to 100.
Without documentation of the constants.
For manual and automatic relative measurements.

Type	Capillary	Constant K	PK	Cat. No.
53001	0a	0.005	1	**9.268 301**
53003	0c	0.003	1	**9.268 303**
53010	I	0.01	1	**9.268 310**
53013	Ic	0,03	1	**9.268 313**
53020	II	0.1	1	**9.268 320**
53023	IIc	0.3	1	**9.268 323**
53030	III	1	1	**9.268 330**
53033	IIIc	3	1	**9.268 333**
53040	IV	10	1	**9.268 340**

3

3 Viscometers Ubbelohde, glass, kinematic

SI Analytics GmbH

To ISO/DIS 3105. DIN 51562. BS 188. NF T 60 to 100.
For manual or automatic measurements.
Constants documented in manufacturer's certificate.

Type	Capillary	Capillary i.d. mm	Constant K	Measuring range mm²/sec	PK	Cat. No.
501 00	0	0.36	0.001	0.2 to 1	1	**9.268 100**
501 03	0c	0.47	0.003	0 to 3	1	**9.268 103**
501 01	0a	0.53	0.005	0.8 to 5	1	**9.268 101**
501 10	I	0.63	0.01	1.2 to 10	1	**9.268 110**
501 13	Ic	0.84	0.03	3 to 30	1	**9.268 113**
501 11	Ia	0.95	0.05	5 to 50	1	**9.268 111**
501 20	II	1.13	0.1	10 to 100	1	**9.268 120**
501 23	IIc	1.50	0.3	30 to 300	1	**9.268 123**
501 21	IIa	1.69	0.5	50 to 500	1	**9.268 121**
501 30	III	2.01	1	100 to 1000	1	**9.268 130**
501 33	IIIc	2.65	3	300 to 3000	1	**9.268 133**
501 31	IIIa	3.00	5	500 to 5000	1	**9.268 131**
501 40	IV	3.60	10	1000 to 10000	1	**9.268 140**
532 10	I	0.63	0.01	1.2 to 10	1	**9.268 210**
532 13	Ic	0.84	0.03	3 to 30	1	**9.268 213**
532 20	II	1.13	0.1	10 to 100	1	**9.268 220**
532 23	IIc	1.50	0.3	30 to 300	1	**9.268 223**
532 30	III	2.65	3	300 to 3000	1	**9.268 230**
532 33	IIIc	3.60	10	1000 to 10000	1	**9.268 233**

4

4 Viscometer holders

SI Analytics GmbH

Type 05392. VA steel.
Suitable for all Ubbelohde viscometers without TC sensors. For manual and automatic measurements. Holds the viscometer perpendicularly. Accuracy <1°. Protects the viscometer from damage.

Type	PK	Cat. No.
05392	1	**9.268 790**

1 Viscometer heating jacket

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With support plate for Ubbelohde and capillary viscometers. *SI Analytics GmbH*
Can be thermoregulated in mantles in the temperature range 0 to 180°C.

Type	PK	Cat. No.
Viscometer heating jacket	1	**9.269 420**

2 Automatic viscometer ViscoClock

2

Introductory model for automatic viscosity analysis. *SI Analytics GmbH*
For determining absolute and relative viscosity.

The most precise method for determining the viscosity of liquids is to measure it in capillary viscometers. The ViscoClock works in accordance with this method. Optical fibres precisely determine the liquid meniscus on two measuring planes, the running time is determined and displayed with a resolution of 0.01 secs. Since the measuring process runs automatically, subjective sources of error are reliably excluded. The 0.01% accuracy of the measured time for calculating the absolute and relative viscosity is given as a measuring uncertainty with a confidence level of 95 %.

The ViscoClock was designed to use of Ubbelohde, micro Ubbelohde or micro Ostwald viscometers and can be operated in all thermostatic baths with transparent tanks.

Measuring range:	Up to 999.99 secs./resolution 0.01 sec.
Timing accuracy:	±0.01 sec. ±1 digit, but not more accurate than 0.1%, given as measuring uncertainty with a confidence level of 95%
Measuring range viscosity:	0.35 to 10000 mm²/sec. (cSt) The absolute, kinematic viscosity is also dependent on the uncertainty of the numerical value of the viscometer constants and on the measuring environment, in particular the measuring temperature
RS 232C interface:	For connecting a printer with a serial interface or a computer (PC) for documenting the data
Operating temperature:	Stand: -40 to +150°C Electronic measuring unit: +10 to +40°C
Dimensions (WxDxH):	approx. 95 x 50 x 490 mm
Weight:	approx. 450g (without viscometer) Power pack approx. 220g
Viscometers accepted:	Ubbelohde (DIN, ISO, ASTM, micro), micro Ostwald.

Type	PK	Cat. No.
ViscoClock	1	**9.269 480**

3 Laboratory Viscometer ProRheo R180

3

ProRheo R180 is both a portable and "stand alone" rotational viscometer.
- rugged instrument housing
- easy to use and wide measurement range
- relevant parameters can be stored
- measuring systems according to DIN 53019
- measurement accuracy: < 1 %
- measurement range: 5 mPas to 540.000 mPas
- Torque: 0.25 to 10 mNm ±0.01 mNm
- rotational speed: 5 to 1000 rpm
- Measurement programmes: 8 measurement points at different shear rates: 2 predefined test set-ups, 8 programmable test set-ups.

R180 viscometer includes:
- Power supply
- stand
- measuring tubes 1, 2 and 3
- measuring bobs 1, 2 and 3
- tube caps 1, 2 and 3
- Instrument case
- Operating instructions

Application table for measuring tubes and bobs

Type	Measuring system	Tube dia. mm	External body dia. mm	Viscosity min. mPa.	Viscosity max. mPa.	Capacity ml	PK	Cat. No.
R180*	11	32.5	30	5	10000	approx. 24	1	**9.106 650**
R180*	22	26.1	24	10	20000	approx. 16	1	**9.106 650**
R180*	33	15.2	14	20	100000	approx. 9	1	**9.106 650**

* All applications are done with the same instrument.

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1 2 Melting point apparatus, Electrothermal IA 9100/9200/9300

Electrothermal

With microprocessor heating oven control. Up to 3 melting points can be quickly and accurately determined simultaneously. The ramp starting temperature of the approximate melting range can be input via the keyboard. The units quickly heat up to this temperature and give an optical and acoustic signal once it has been reached. By the operator then pressing another key, the devices begin to heat up at a constant rate (IA 9100 fixed at 1°C/min., IA 9200 and IA 9300 adjustable between 0.2 to 10°C/min. in increments of 0.1°C).
Up to 4 melting points(IA 9300 up to 6 melting points) can be recorded and transferred to the memory as discreet temperatures for later recall on the display. The different phases of a melt or the critical melting temperatures of various samples can be investigated under the same conditions in this way. Model IA 9200/9300 provides the opportunity for computer-supported data analysis. The initial temperature and heating rate can be set via the keyboard in order that various test protocols are available. An accessory printer enables documentation of the results, date, time (real time) and sample number. Model IA 9200/9300 can allocate continuous sample numbers or recall data via the keyboard. Information can be transferred directly to a LIMS computer via the RS 232 C interface.
The 8X magnifier has a Ø of 40mm and an adjustable focal point. Units comply with VDE requirements (CE marked).
Model IA 9300 can be used for pharmacopeia requirements.

Dimensions (WxDxH):	200 x 350 x 85 mm
Weight:	2.5 kg
Input:	220-240 V
Output:	12 V
Power:	45 W
Oven output:	18 W
Oven chamber illumination:	12 V 2.2 W
Oven temperature range:	45 to 400°C
Digital thermometer	
Sensor:	linearised industrial platinum resistance thermometer, compensated
Measuring range:	Amb. to 400°C
Resolution:	0.1°C
Accuracy:	±0.6°C at 20°C ±1 digit ±1.0°C at 350°C ±1 digit
Display:	Four-digit, 12 mm high LCD

Typ	Menge pro VE	Bestell Nr.
IA 9100	1	**9.830 441**
IA 9200	1	**9.830 442**
IA 9300	1	**9.830 443**

Accessories for melting point appratus Electrothermal IA 9100/9200/9300

Type	PK	Cat. No.
Cold finger	1	**9.830 445**
Dust cover	1	**9.830 446**
Calibration set	1	**9.830 451**
Capillary tubes, 2.0 mm Ø	100	**9.830 447**
Printer with connection cable	1	**9.830 448**
Cal. std. Carbazole (245.61 °C) 0.5 g	1	**9.830 469**
Capillary tubes, 1.5 mm Ø	100	**9.830 463**

1 2 Melting point apparatus, model SMP10/SMP20

Supplied with 100 melting point tubes, open one end. *Stuart*
With BioCote, silver-based, antimicrobial protection.

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Specification	**SMP10/SMP20**
Number of samples:	2
Temperature range:	Ambient to 300ºC
Temperature accuracy:	±1.0ºC at 20ºC, ±2.5ºC at 300ºC
Display:	Three digit LED/Four digit LED
Display resolution:	1ºC/0.1ºC
Display hold facility:	No/ Yes
Ramp rates:	20ºC per minute to plateau, 2ºC per minute to melt/20ºC per minute to plateau, variable between 1 and 10ºC per minute to melt
Dimensions (w x d x h):	160 x 220 x 170mm
Net weight:	1.8kg
Electrical supply:	230V, 50Hz, 75W

Type	PK	Cat. No.
SMP10	1	**9.950 177**
SMP20	1	**9.830 430**
Lampe	1	**6.227 895**

3 4 5 Melting Point Apparatus, advanced, SMP30

Stuart

- Maximum temperature 400°C
- Patented head up display
- Integrated cooling 350°C to 50°C in 10 minutes
- Large easy to read user friendly interface

The SMP30 can take three samples simultaneously within the optimised heating block. To allow maximum flexibility a plateau facility is included with variable ramp rate between 0.5 and 10°C in 0.1°C increments. The tubes are illuminated with bright white LEDs to give the clearest view of the samples during the melt. The block has been designed for easy access for cleaning. To allow the most comfortable viewing angle the SMP30 features a two stage head adjustment. The SMP30 features the patent pending head up display, this unique feature displays a floating image of the block temperature, visible through the eyepiece, in front of the tubes.

An accessory printer is available separately to produce a written record of the melt.

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Specifications

No of samples:	3
Temperature range:	Ambient to 400°C
Temperature resolution:	0.1°C
Display:	40 x 4 segment LCD
Ramp rates:	0.5 to 10°C in 0.1°C increments
Memory:	8 results per tube
Date/time display:	Yes
Cool down time:	350 to 50°C (~12 mins)
Heat up time:	50 to 350°C (~ 6 mins)
Supply requirements:	120V/230V 50Hz
Language variants:	English, German, French, Italian
Temperature unit:	°C

Type	PK	Cat. No.
Melting point apparatus, complete with pack of 100 melting point tubes, closed at one end.	1	**9.950 188**
Melting point tubes, closed at one end.	100	**6.803 067**

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2

1 2 Automatic Melting Point Apparatus, SMP40

Stuart

- maximum temperature 400°C
- utilises latest technology in digital imaging
- 5.7" colour VGA touch screen display
- unique split design concept
- integrated cooling: 350°C to 50°C in 10 minutes

The SMP40 automatic melting point uses the latest technology in digital image processing to accurately identify the melt of up to three samples simultaneously. The unit comes with a 5.7" colour VGA display, on which the melt can be watched real time, or the melt video will automatically be saved as an AVI file that can be reviewed later, either on the unit or via PC. The result can also be overridden if for any reason the operator does not agree with the result calculated by the image processing algorithm. The SMP40 has an innovative split design concept, the unit can be used as normal or the control side and the melt side can be separated, allowing maximum footprint flexibility. Once the unit has been split the control panel side can be used in two orientations, either landscape or portrait to allow the perfect viewing angle whether you are sat or stood at the bench, the screen automatically changes orientation with the unit. The unit can store up to 200 result files with videos, if required data can be easily transferred from the unit to a flash memory drive or PC via one of the USB connectors. All units are supplied with a calibration certificate showing individual serial numbers for traceability. The SMP40 conforms to Pharmacopeia and GLP.

The SMP40 is also available with IQ/OQ documentation according to FDA guidelines.

Specifications

No of samples:	3 simultaneously
Temperature range:	Ambient to 400°C
Temperature resolution:	0.1°C
Display:	5.7" Colour VGA touchscreen
Ramp rates:	0.1 to 10°C in 0.1°C increments
Memory:	200 results with video
Date/time display:	Yes
Cool down time:	350 to 50°C (approx. 10 mins)
Heat up time:	50 to 350°C (approx. 6 mins)
Flash memory/PC interface:	USB
Supply requirements:	120V, 230V 50Hz a.c.
Language:	English
Temperature units:	°C, °F

Type	PK	Cat. No.
Melting point apparatus, incl. 100 melting point tubes, closed at both ends	1	**9.950 398**
Glass melting point tubes, closed at both ends	100	**9.950 400**

3

3 Melting point apparatus, Thiele tube

DURAN® tubing, Thiele pattern tube, with side limb.

Lenz

Type	PK	Cat. No.
Melting point apparatus	1	**9.208 000**

E & OE.

1 Melting point tubes

Capillary tubes for melting point analysis, one end closed. Clear glass, different diameters and lengths. Special remarks are available. Other sizes on request. *Hirschmann*

Type	Length mm	Ext. dia. mm	Int. dia. mm	PK	Cat. No.
Sealed one end	75	1.6	1.20	100	**9.208 076**
Sealed one end	80	1.0	0.80	100	**9.208 081**
Sealed one end	100	1.0	0.80	100	**9.208 101**
Open both ends	80	1.0	0.80	100	**9.208 080**
Open both ends	100	1.0	0.80	100	**9.208 100**

2 Melting point apparatus, Dr. Linström pattern

Based on the model developed by Dr. Linström. *Wagner & Munz*
Offers simple operation. Maintenance-free. Simultaneous analysis of three melting points (capillaries). CE marked.

Supply requirements: 6 W a.c. adapter for 230V
Gas requirement: Natural or propane gas
Temperature range: to +360°C or +420°C

Type	PK	Cat. No.
Natural gas operation	1	**9.830 100**
Propane gas operation	1	**9.830 102**
Digital measurement, natural gas operation	1	**9.830 130**
Digital measurement, propane gas operation	1	**9.830 131**
Retrofit kit, digital temperature meter	1	**9.830 136**

3 Hot bench, Kofler system

Very easy to use. Various characteristics can be observed simultaneously. Linear temperature scale adjustment. Enables quick identification of organic substances. Supplied with test and standard material sets. CE marked. *Wagner & Munz*

Dimensions (WxDxH): 430 x 100 x 140mm
Supply requirements: 230 V/50 Hz, 100 W
Temperature range: +50 to +260°C

Type	PK	Cat. No.
Hot bench	1	**9.830 160**

4 Microscope hot stage, Kofler, PolyTherm A

Kofler system. *Wagner & Munz*
Ensure the most accurate resolution for analysis on unknown melting points.
Ready-made assembly with control transformer and microscope observation unit with accessories. CE marked.
With digital temperature measuring system.

Supply requirements: 230 V/50/60 Hz
Sub-stage illumination: 6 V/20 W
Temperature range: +50 to +350°C
Binocular observation tube: 45° angled, with 360° rotation

Type	PK	Cat. No.
PolyTherm A	1	**9.830 133**

1 Automatic Transmittance Colorimeters, Lovibond® PFX195 Series

Tintometer

- consistent and reliable colour data
- comprehensive and flexible choice of standard colour scales
- remote upgrade facility for adding scales once in service
- allows calculation and description of off-hue status
- gives closest match to stored references
- generates a customised colour scale from reference samples
- robust design that is easy to operate and maintain
- includes a glass colour standard for conformance checks
- supplied with colour control software for data analysis
- output conforming to GLP including date, time, sample and user ID
- accommodates a range of sample cells and tubes

A series of spectrophotometric colorimeters for colour grading of light transmitting samples. Each version of the PFX195 includes a selection of standard colour scales that are used in a specific industry sector; additional scales can be added as optional upgrades. Results can also be displayed in terms of spectral data and CIE values.

Details of the most popular PFX195 versions are shown below. Versions that include FAC Colour, Klett Colour (blue filter KS-42), Hess-Ives Colour Units, Yellowness Index, US Naval Stores Rosin, Chinese Pharmacopoeia, ICUMSA Colour and Pfund/Honey are also available.

New PFXi Series available on request.

Type	For	Colour scale	PK	Cat. No.
PFX195/1	Liquid chemicals & industrial oils	Pt-Co/Hazen/APHA, Gardner, Iodine, CIE Values, Spectral data	1	**9.947 327**
PFX195/2	Petroleum oils & fuels	Saybolt, ASTM Colour, Pt-Co/Hazen/APHA, CIE Values, Spectral data	1	**9.947 328**
PFX195/4	Beers, malts & caramels	EBC Colour, ASBC Colour, Series 52 (Brown), CIE Values, Spectral data	1	**9.947 329**
PFX195/5	Pharmaceutical solutions	European/US Pharmacopoeia, Pt-Co/Hazen/ APHA, CIE Values, Spectral data	1	**9.947 330**

Each PFX195 is supplied complete with optical glass cells for the colour scales included, a certified glass filter of specified colour value for regular conformance testing, a spare lamp and instructions.

2 Visual Colorimeter, Lovibond® Tintometer Model F

Tintometer

- Individually housed glass colour standards
- Prismatic optical system for accurate and repeatable colour matching
- Standardised and diffused tungsten-halogen light source
- Replacement inserts simplify cleaning and maintain interior whiteness

The Model F is a versatile visual colorimeter for measuring the colour of liquids, solids, powders and pastes in terms of Lovibond units. The user simultaneously compares the colour of light that is either transmitted through or reflected from the sample with that transmitted through a series of glass colour filters in 3 primary colours - red, blue and yellow. The slides are adjusted until a visual colour match is found for the light from the sample and the colour is then expressed in Lovibond RYBN units.

The Model F is supplied with a complete set of Lovibond coloured glass filters (Red 0.1 to 70; Yellow 0.1 to 70; Blue 0.1 to 40; Neutral 0.1 to 3.0), a sample chamber insert for easy cleaning, fused glass cells (one each of 1" and 5¼"), accessories and instructions. An optional solid sample accessory pack is available for measuring light-reflecting products. Includes a 12 Volt a.c. power pack switchable to suit 110/220/Volt supply.

Description	PK	Cat. No.
Tintometer Model F	1	**9.947 340**

Each instrument is supplied with optical cuvettes of the appropriate path length for the individual colour scales, calibration filter, spare lamp and operating instructions.

Accessories for visual Colorimeter, Lovibond® Tintometer Model F

Tintometer

Description	PK	Cat. No.
1/2" optical glass cell	1	**9.947 341**
1" optical glass cell	1	**9.947 342**
5 1/4" optical glass cell	1	**9.947 343**
Replacement sample chamber insert for Model F	3	**9.947 346**
Accessory pack for solid sample measurement	1	**9.947 347**

1 Lovibond® Nessleriser Systems, Pt-Co/Hazen/APHA Scale

Tintometer

For colour grading of clear, light yellow liquids such as clear oils, chemicals, petrochemicals and water. Each system covers a set measuring range and includes:

- A visual comparator instrument with a long path length, ensuring good sensitivity and accuracy when grading pale coloured samples.
- A selection of Pt-Co/APHA colour standards; stable-coloured glass filters in test discs, which have been precalibrated to give direct Pt-Co Colour readings over set measuring ranges.
- A standardised bench-top light source to ensure constant and uniform lighting conditions for colour matching and therefore consistent and accurate readings.
- Nessler cylinders of the appropriate path length.

Model	Apparatus included
AF 329:	Nessleriser 2150 with Daylight 2000 Lighting Unit and 113mm (50ml) Nessler cylinders, Nessleriser 2250 upgrade with 250mm Nessler cylinders, Pt-Co discs CAA (0 to 30mg Pt/l) CAB (30 to 70mg Pt/l), NSB (70 to 250mg Pt/l), stand for using Nessleriser with natural light.
dAF 325:	Nessleriser 2150 with Daylight 2000 Lighting Unit and 113 mm (50ml) Nessler cylinders, Pt-Co discs NSH (10 to 90mg Pt/l), NSB (70 to 250mg Pt/l), stand for using Nessleriser with natural light.
dAF 328:	Nessleriser 2250 with Daylight 2000 Lighting Unit and 250mm Nessler cylinders, Pt-Co discs CAA (0 to 30mg Pt/l), CAB (30 to 70mg Pt/l), stand for using Nessleriser with natural light.

Type	Pt-Co range	PK	Cat. No.
AF 329	0 - 250mg Pt/l	1	**9.947 334**
AF 325	10 - 250mg Pt/l	1	**9.947 335**
AF 328	0 - 70mg Pt/l	1	**9.947 336**